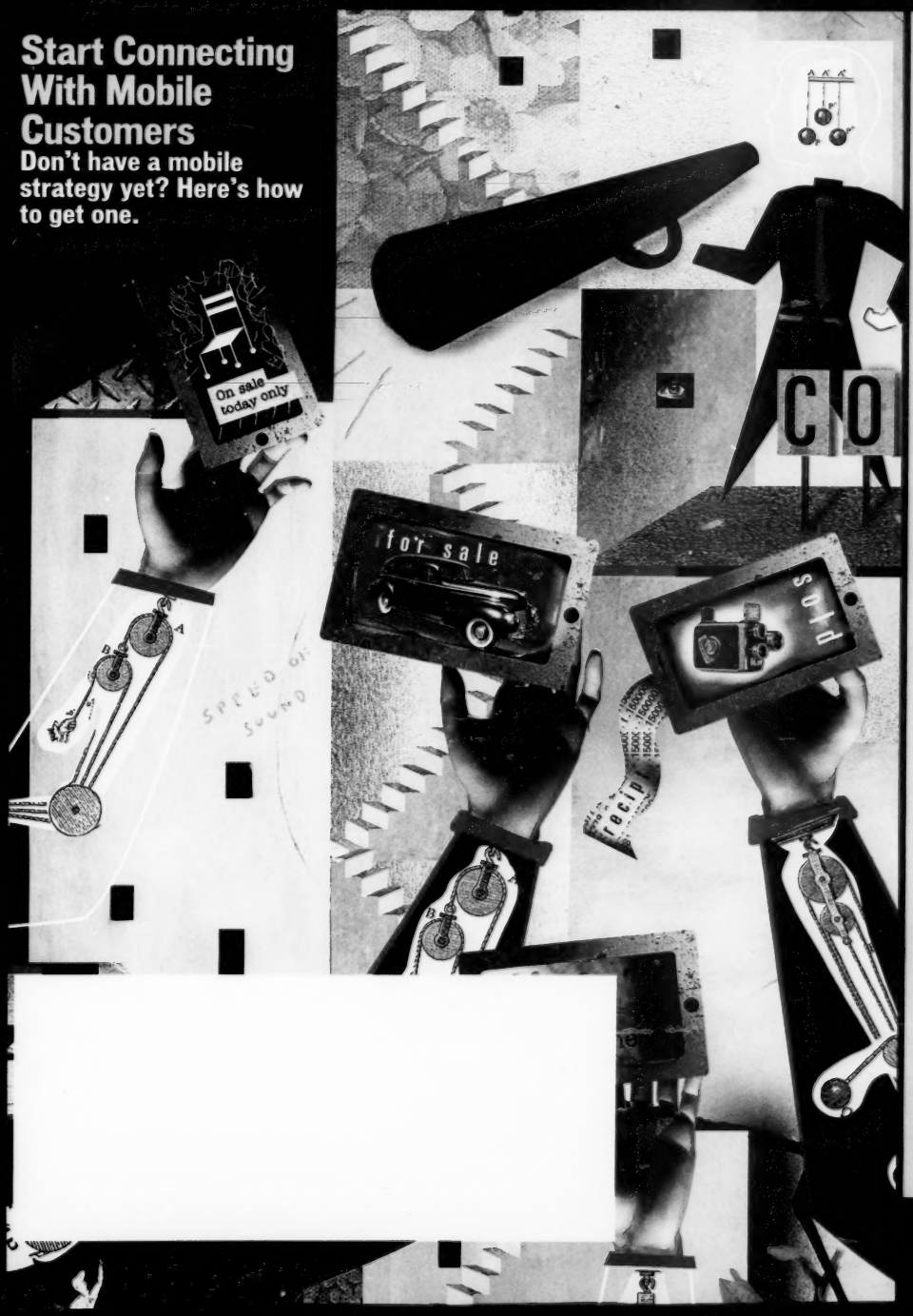
Avoid an E-discovery Disaster: Learn what spoliation is, and get tips for making sure you're ready to preserve evidence if your company lands in court. PAGE 30

COMPUTERWORLD®

Start Connecting With Mobile Customers

Don't have a mobile strategy yet? Here's how to get one.



Inside

OCTOBER 5, 2009
VOL. 43, NO. 30 $5/COPY

News Analysis

Perot's coveted health care business could boost Dell's chances for government contracts. PAGE 12

Google hopes its plug-in for IE can help get its struggling Chrome browser into the enterprise. PAGE 13

THE GRILL: Al Monro's company is capitalizing on touch computing's expanding market. PAGE 14

Opinion

Why IT managers should get behind Twitter – and try it out themselves. PAGE 40

Careers

How to ask for training when money is tight. PAGE 36

Don't Miss . . .

Multicore chips have boosted desktop speeds, but now the software can't keep up. PAGE 24

COMPUTERWORLD.COM

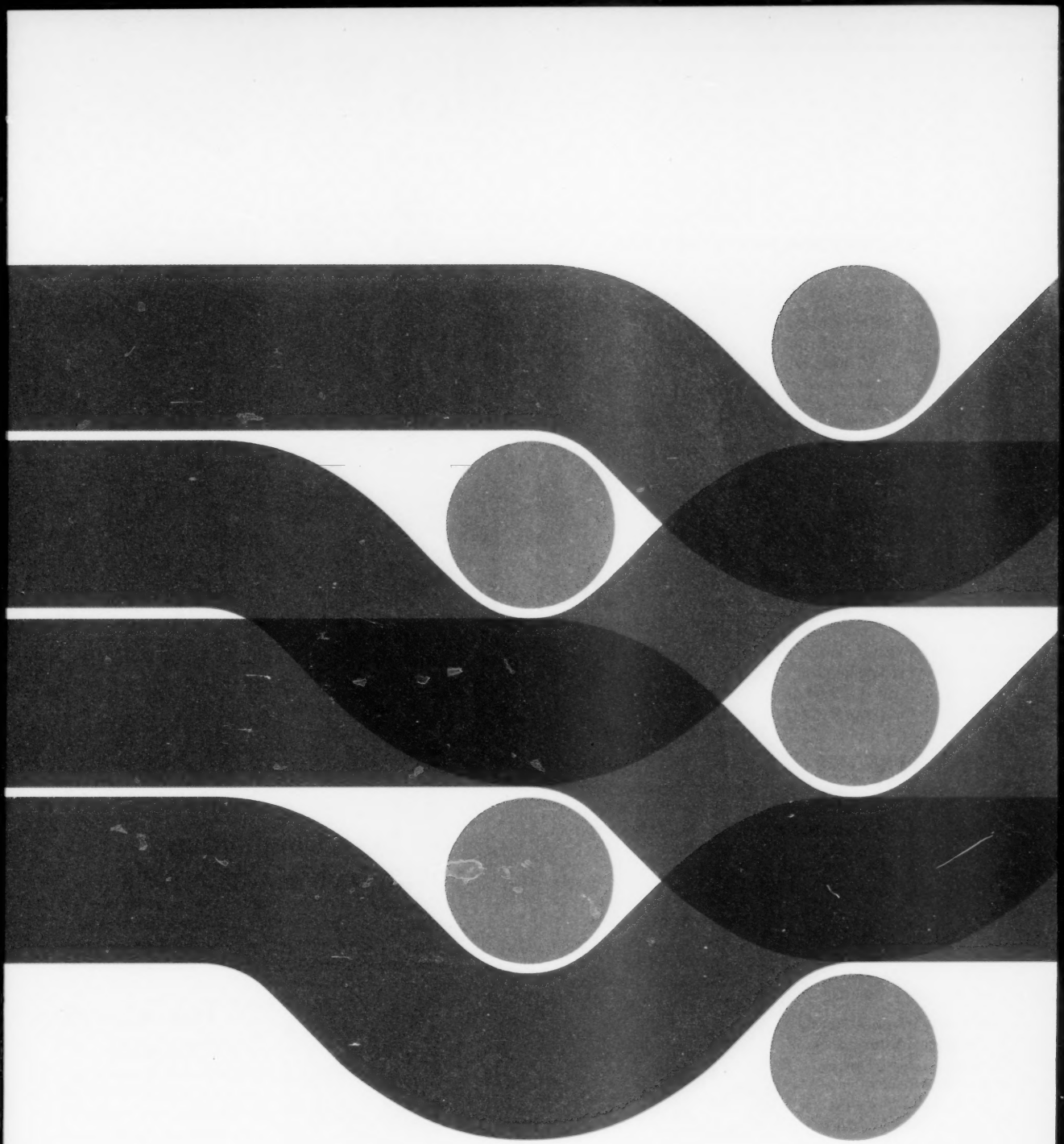
Smarter technology for a Smarter Planet:

Building a fluid enterprise.

To date, companies have spent billions of dollars building automated systems to manage vertical business functions—ERP, SCM, CRM, etc. Unfortunately, the majority of these systems were never designed to talk to each other. It's no wonder then that the average employee wastes 5.3 hours per week working within these siloed and inefficient processes. It's imperative that businesses find smarter ways to work.

IBM's comprehensive business process management solutions integrate the different pieces of your business, enabling fluid workflows. IBM has given over 5,000 companies the visibility and automated processes they need to optimize performance—from a global freight company that reduced development costs by 30% to an oil producer that is measuring their oil fields in real time, doubling the industry's average recovery rates.

A smarter business needs smarter software, systems and services. Let's build a smarter planet. ibm.com/flexible

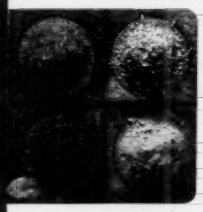


IBM, the IBM logo, ibm.com, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. © International Business Machines Corporation 2009.

Inside

COMPUTERWORLD ■ OCTOBER 5, 2009

■ HEADS UP



8 Wells Fargo has tips on enhancing **IT diversity programs.** | An analyst explains why it might not be cost-effective to keep **laptops** beyond their three-year **life cycles.**

10 IBM's new CIO takes charge of a much more **centralized IT** operation. | A **report** offers a mixed assessment of **green IT efforts.**

11 An **online matchmaker** explains why it won't settle down with just one **BI tool.** | The book **Wrench in the System** has a message for IT: We're building our enterprise software apps all wrong.

■ NEWS ANALYSIS

12 Perot E-health Push Could Prove Profitable for Dell. As it gains a successful health care services business through its acquisition of Perot Systems, Dell is positioning itself to better compete for a glut of forthcoming federal e-health contracts.

13 Google Tries New Ploy to Challenge IE's Dominance. A Google plug-in that embeds the little-used Chrome browser into Microsoft's Internet Explorer shows that the search company isn't giving up on the browser market.

■ OPINIONS

34 John D. Halamka has a front-row seat when it comes to the ongoing debate over how to provide electronic health records.

40 Scot Finnie makes the business case for Twitter.

■ DEPARTMENTS

14 The Grill: Al Monro doesn't want you to give up your keyboard and mouse, but the CEO of New Zealand's NextWindow wants you to touch your PC screen a lot more.

32 QuickStudy: Extensible Business Reporting Language. The SEC has mandated the use of XBRL for financial reporting. Here's how it works.

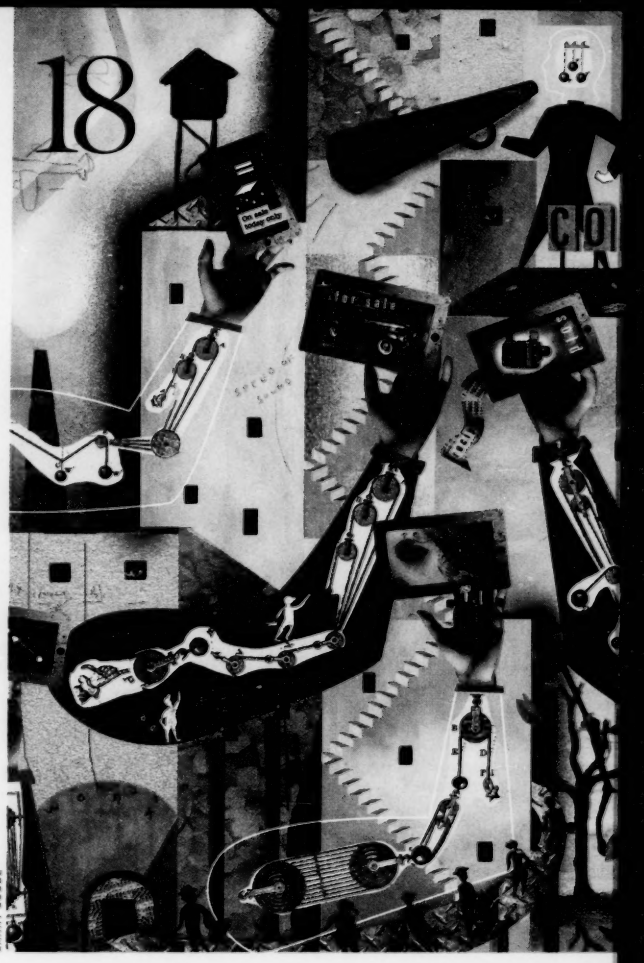
33 Security Manager's Journal: IP Protection May Get Money It Needs. An audit spotlights the need to protect intellectual property. And now that those at the top are on board, funds could finally materialize.

36 Career Watch: Even when budgets are tight, you can still justify training to your employer, says author Katy Piotrowski.

39 Shark Tank: Sure, bring your kid to work. But try to keep him away from the scissors and the network cables.

■ ALSO IN THIS ISSUE

Editor's Note	4
Company Index	39



■ FEATURES

18 Start Connecting With Mobile Customers

It's becoming mandatory to offer customers smartphone apps and a mobile version of your Web site. Here are tips on how to avoid the missteps that some companies made when they ventured into mobile marketing. Hint: Simplicity is key.

24 The Desktop Traffic Jam

Not every desktop application can be reprogrammed for multicore architectures, and some bottlenecks will always remain. Here's why.

30 Avoid an E-discovery Disaster

Failure to preserve electronic evidence could damage your company's case in court.

Introducing AND. It's the new OR.

Finally, a storage solution that doesn't force you to choose either cost efficiency or improved business performance. NetApp's uncompromising approach to storage and data management can both lower IT costs and help to bolster your company's competitiveness. Find out how storage efficiency without compromise can help your company go further, faster. Visit netapp.com/and today.

NetApp
Go further, faster

© 2007 NetApp. All rights reserved. Specifications are subject to change without notice. NetApp, the NetApp logo, and Go further, faster are trademarks or registered trademarks of NetApp, Inc. in the United States and/or other countries. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such.

COMPUTERWORLD

P.O. Box 9171
492 Old Connecticut Path
Framingham, MA 01701
(508) 879-0700
Computerworld.com

■ EDITORIAL

Editor in Chief
Scot Finnie

Executive Editors
Mitch Betts, Julia King (events)

Managing Editors
Michele Lee DeFilippo (production), Sharon Machlis (online), Ken Mingis (news)

Director of Blogs
Joyce Carpenter

Art Director
April Montgomery

Technologies Editor
Johanna Ambrosio

Features Editors
Valerie Potter, Ellen Fanning (special reports), Barbara Krasnoff (reviews)

News Editors
Mike Bucken, Marian Prokop

Senior Editor
Mike Barton (new media)

National Correspondents
Julia King, Robert L. Mitchell

Reporters
Sharon Gaudin, Matt Hamblen, Gregg Keizer, Eric Lai, Lucas Mearian, Patrick Thibodeau, Jaikumar Vijayan

Assistant Managing Editor
Bob Rawson (production)

Editorial Project Manager
Mari Keefe

Associate Editor, Community
Ken Gagné

Office Manager
Linda Gorgone

Contributing Editors
Jamie Eckle, Preston Gralla, Tracy Mayor

■ CONTACTS

Phone numbers, e-mail addresses and reporters' beats are available online at *Computerworld.com* (see Contacts link at the bottom of the home page).

Letters to the Editor
Send to letters@computerworld.com. Include an address and phone number for immediate verification. Letters will be edited for brevity and clarity.

News tips newstips@computerworld.com

Subscriptions and back issues
(888) 559-7327, cw@omeda.com

Reprints/permissions
The YGS Group, (800) 501-9571, ext. 180, computerworld@theygsgroup.com

■ EDITOR'S NOTE

Computerworld Changes, but Its Mission Doesn't

WITH THIS ISSUE, *Computerworld*, the magazine, has a new publication frequency: It will be coming to you twice a month instead of once a week. We realize that not everyone will see this as a positive step right away. But after thinking long and hard about this decision, *Computerworld*'s editors concluded that it's the right move, and we believe that in time, you'll agree.

Why the change? *Computerworld* has long been focused on reporting IT news. We remain committed to that mission, but news reporting has become an online endeavor, with a publishing cycle measured not in days but in hours. Over the past three years, our managing editor for news, Ken Mingis, has worked hard to make *Computerworld.com* the place to turn for breaking IT news. To be honest, a print newsweekly in a fast-paced industry like IT is an anachronism.

So it makes sense for us to change the print cycle, but it doesn't make sense for *Computerworld* to change what it is in all other regards. We'll leverage the Internet to report the news, but we'll also continue to be the very best magazine focusing on what real-world IT pros think about the news, technologies, management strategies, trends, issues and products that make up information technology. You can continue to expect the very best articles, opinions and analysis about technology, management strategies and career choices. According to our subscriber surveys, that's the kind of content you value most in *Computerworld*.

We're keeping the News Analysis section of the magazine, but as you go through the issue in your hands, you'll see that the News Digest section has been replaced by one called Heads Up (starting on page 8). The brainchild of Executive Editor Mitch Betts, Heads Up is a collection of newsy nuggets on advanced technologies and IT trends, insights from CIOs and research analysts, and stories and observations from our reporters. Sometimes it may feature a great idea from one of your peers at another IT shop in a section called "Steal This Idea."

The magazine may arrive less frequently, but we believe *Computerworld* will be an even better read. Let me know if you think differently, and please pass along any ideas or suggestions. My e-mail address is sfinnie@computerworld.com.

■ **Scot Finnie,** *Editor in Chief*

COMPUTERWORLD.COM

Find these stories at computerworld.com/more

WiMax in 2010: Too Little, Too Late?

WiMax is finally making wide-area wireless broadband a reality in many cities – but another technology is fast encroaching.

When It Comes to Users, One Size Doesn't Fit All

OPINION: Take a lesson from corporate marketers and segment your IT shop's customers, says a former CIO.

Slashing IT Maintenance

Struggling to curb spending, some companies are now asking IT to cut back on vendor maintenance contracts.

Mobile Internet Devices

Bigger than smartphones but smaller than netbooks, these "tweener" devices are struggling to find a niche.

Microsoft's Office Web Apps

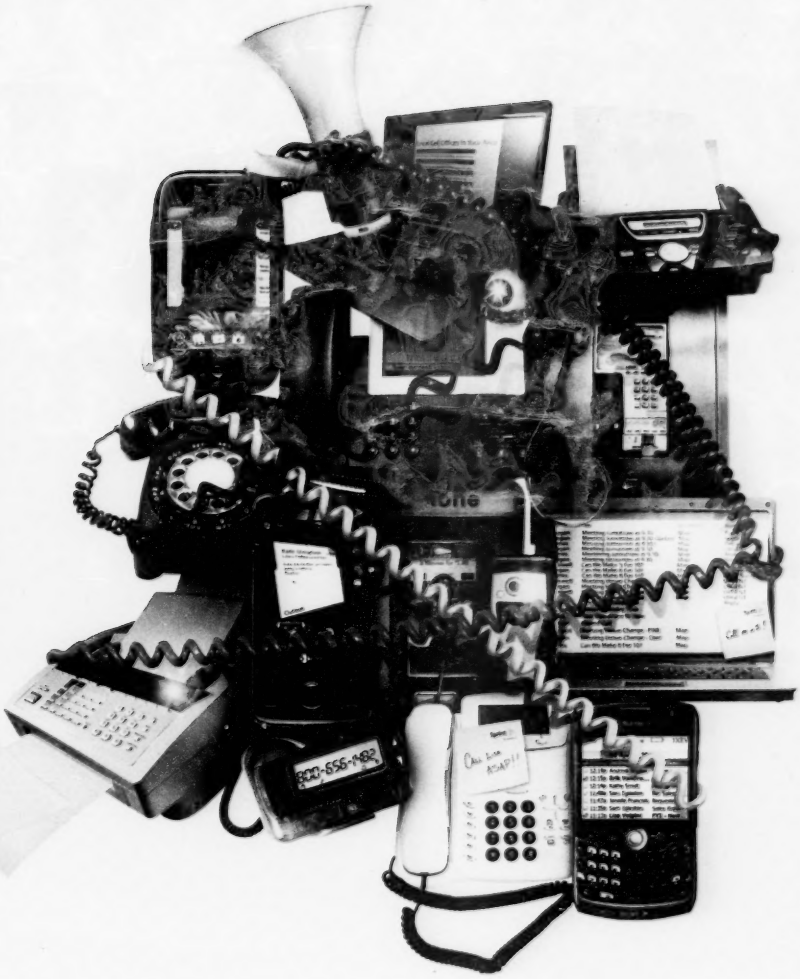
HANDS-ON: Microsoft's answer to the Google Apps suite looks good, but it lacks some significant features.

For Better Tweeting

REVIEW: A look at tools that add lot of functionality to Twitter.

Sprint

The Now Network™



The end of phone tag. *Turn your desk phone and mobile phone into one with Sprint Mobile Integration. You'll have one number, one voicemail and one easy way to control mobile usage. Simplify the way your company stays in touch. Make it easier for clients to reach you. And reduce company telecom expenses. Less dialing, happier clients. Productivity starts now.*

1-866-653-1056 sprint.com/convergence

©2009 Sprint. Sprint and the logo are trademarks of Sprint. Other marks are the property of their respective owners.

SIMPLICIT

© 2009 Citrix Systems, Inc. All rights reserved. Simplicity is Power and its stylized treatment, XenDesktop and HDX technology are trademarks of Citrix Systems, Inc.

Y IS POWER

The power of high-def desktops.

It's more than a desktop. It's an immersive experience.

Deliver a vibrant, personalized, high-definition desktop to any device, across any network, with Citrix® XenDesktop.™ Now you can dramatically simplify desktop management without compromising user experience. Industry-leading HDX™ 3D technology makes it possible. On PCs or Macs. Laptops or smartphones. Users are in for an unparalleled experience for everything from applications to rich media. That's the power of desktop virtualization at work.

And everywhere else, too.

Simplicity is power. Citrix.

CITRIX®

Citrix.com/SimplicityIsPower

Fresh Insights
New Trends
Great Ideas

HeadsUp

© FOTOLIA / YANA

STEAL THIS IDEA

How to Enhance an IT Diversity Program

WHEN PEOPLE think of diversity programs, they tend to think of annual seminars urging managers to hire and promote employees from a variety backgrounds. While that's important, diversity can mean much more, according to Kristina Draper, chief application officer in Wells Fargo & Co.'s Scottsdale, Ariz., office.

In an interview, Draper said diversity also involves learning how to serve different departments, market to customer segments, use an array of suppliers and work with colleagues who have different opinions.

Based on her experience as former chairwoman of the bank's Technology and Operations Diversity Council, Draper offered the following tips for making diversity part of the organizational culture:

- Hold quarterly "diversity cafes" — one-hour sessions with senior managers — to discuss topics such as supplier diversity or marketing to customer niches.
- Encourage mentor relationships — including ones where the mentor and mentee come from different departments or lines of business — to nurture talented staffers and expose them to new areas.
- Support affinity groups for people who share the same background, but open the meetings to employees with different backgrounds. For example, "we have men who attend the Women in Technology group meetings," Draper said.

Are IT workers too busy fixing crashed servers to participate in diversity programs? Draper said Wells Fargo's top executives have vowed "not to dismiss this as a second priority. Diversity is important, regardless of how busy you are."

– Mitch Betts

COMPUTERWORLD.COM

RESEARCH RECAP

Upkeep Makes Laptops Costly In Years 4 and 5

These days, companies are tempted to hang on to their notebook computers for a couple of years beyond the usual three-year life cycle in order to avoid the capital expense of replacing them. But tech analyst Jack Gold has developed a cost model that casts doubt on that make-do strategy.

In essence, Gold said that in Years 4 and 5, the laptops are more trouble than they're worth. Gold, founder of J.Gold Associates LLC in Northboro, Mass., said that because of the need for repairs, keeping notebooks the extra two years actually costs an additional $960 per machine – a sum that may exceed a cost of a typical replacement notebook.

"After the third year, hard drive failures go up dramatically," as do problems with keyboards, screens and batteries, Gold said in an interview. Plus, the outdated notebooks will cost an organization $9,600 annually per person in lost end-user productivity, Gold said, since a machine that's two generations behind current models takes longer to boot up and runs sluggishly.

Gold's model also indicates that the cost of repairing a failed notebook that's under warranty is $970, whereas the cost of repairing a failed notebook that isn't under warranty is $1,425.

– MITCH BETTS

Microsoft

Efficiency you can feel, but can't touch.

Finally, a consolidated virtualized infrastructure, from the data center to the desktop, is within grasp. Well, not literally of course. After all, it's virtualized. Start with Windows Server®2008 R2 with built-in Hyper-V™ and you can eliminate costly third-party software like VMware. Add SQL Server®2008 Enterprise, with unlimited virtualization, and you just made it easier to eliminate racks of underutilized servers. Toss in System Center and you've centralized management across the enterprise all the way down to the application level. Translation? Flexible and dynamic virtualized infrastructures that help maximize ROI, reduce TCO and improve business continuity. Just don't let the efficiency go to your head.

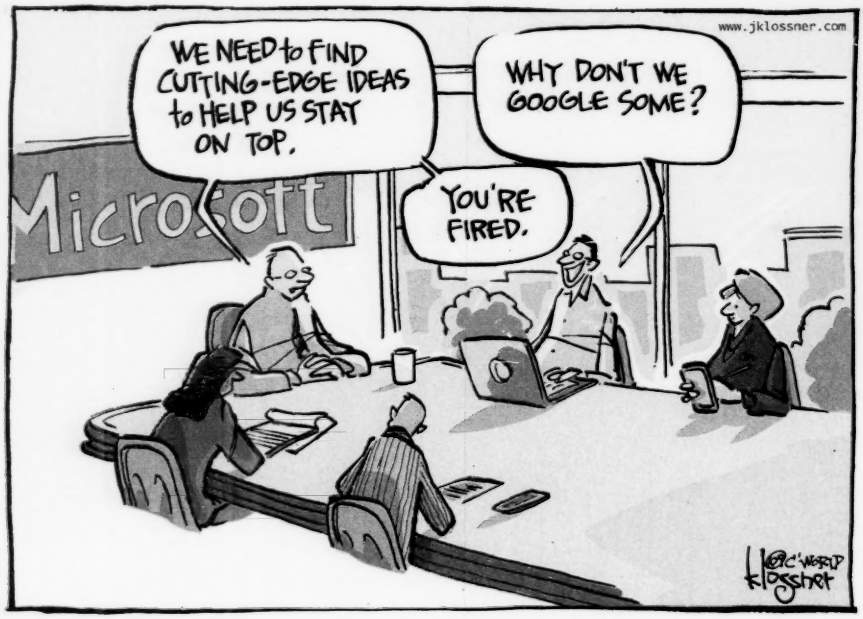
To learn more about how server virtualization can make you more efficient, go to itseverybodysbusiness.com/virtual

Snap this tag to get the latest news on server virtualization or text VIRTUAL to 21710

Get the free app for your phone at **http://gettag.mobi**

Because it's everybody's business

BETWEEN THE LINES
By John Klossner


www.jklossner.com
WE NEED to FIND CUTTING-EDGE IDEAS to HELP US STAY ON TOP.
WHY DON'T WE GOOGLE SOME?
YOU'RE FIRED.
Microsoft
IDG World Klossner

CIO INSIGHTS

IBM's New CIO Takes On Powerful Role

VETERAN IBM executive Pat Toole was recently named corporate CIO at the company and given much broader responsibilities than his predecessors in the post, which now oversees a far more centralized IT operation.

Toole, who joined IBM in 1984 and was most recently general manager of IBM's intellectual property unit, takes over an IT operation that has already reduced the number of data centers from 155 to five, and the application portfolio from 15,000 to 4,500 — so far.

The massive consolidation effort includes a shift to centralized IT management, a move completed this year by outgoing CIO Mark Hennessy, who now heads strategy for IBM's sales operation.

IBM's corporate CIO had previously focused on strategy and governance while working with the CIOs in the company's business units. In the new arrangement, Toole is responsible for IBM's overall IT strategy and operations, which means he handles everything from IBM's emerging strategy for cloud computing to worldwide crises and mundane daily operations.

Toole said the broader charter will enable large-scale IT transformation, such as a current project to revamp IBM's SAP application infrastructure to match global processes. "In the past, SAP was optimized on a local level," he said.

Centralization of IT operations may be the wave of the future. In an IBM survey of 2,500 CIOs worldwide, three-fourths of the respondents said that they "anticipate having a strongly centralized infrastructure in five years."

IT centralization also helps CIOs focus on activities that spur innovation and use information for competitive advantage, IBM said.

In the survey, 83% of the CIOs cited business intelligence and analytics as the top area to focus on to enhance competitiveness.

– Patrick Thibodeau

Micro Burst

By 2013, nearly

64%

of the world's mobile traffic will be video, mostly via broadband handsets and laptop cellular cards.

GREEN TECH

Economy Nips Power-Saving IT Purchases

A survey of 752 IT professionals provided a mixed assessment of U.S. organizations' pursuit of green IT.

CDW Corp.'s 2009 Energy Efficient IT Report found that more organizations are implementing server virtualization and using desktop power management features this year than in 2008.

But the extreme budget pressures of the economic recession have caused IT managers to focus more on short-term costs rather than long-term energy savings when purchasing equipment.

One issue is that many IT managers don't actually have responsibility for the amount and cost of energy used in IT operations. According to the report, IT managers who do "own the IT energy bill" are twice as likely to make energy efficiency a high priority in purchasing decisions.

The U.S. Environmental Protection Agency's new Energy Star program for servers appears to be gaining traction: 90% of the survey respondents said that their next server purchase is likely to have the Energy Star label.

– MITCH BETTS

BUSINESS INTELLIGENCE

Online Matchmaker Won't Settle Down With Just One BI Tool

WHILE EHARMONY.COM INC.'S mission is to help its 20 million members get married or settle into long-term relationships, the online matchmaking company is a bit of a commitment-phobe when it comes to business intelligence technology.

The system that powers eHarmony's matchmaking operation relies on four products: Oracle Corp.'s database, the open-source MySQL database, an open-source data-crunching application called Hadoop, and Netezza Corp. data warehousing appliances.

For some IT managers, managing four such disparate products wouldn't be worth the trouble. But it's OK with Joseph Essas, vice president of engineering and operations at eHarmony in Pasadena, Calif. "We always use multiple vendors for different things," Essas said at *Computerworld*'s recent Business Intelligence Perspectives conference in Chicago.

Like a flirt who keeps several suitors at arm's length, Essas said that he enjoys the leverage eHarmony gets from "playing multiple people against each other." Settling down with one vendor might initially seem like a bargain, he said, but it would eventually cause eHarmony to financially "bleed to death in Years 2 to 5."

Essas' philosophy is remarkable because it runs counter to the Web site's goal of producing long-term, exclusive relationships.

According to the company, 236 of its 20 million members get married every day.

That's just one of "hundreds of metrics" that eHarmony "deeply cares about," Essas said. Producing and tracking all of those metrics is critical, because eHarmony must produce good matches for its members as soon as they fill out their profiles, lest it lose customers to rival dating sites. "Their attention span with us is very short," Essas said, "so we need to get it right on the first try."

EHarmony uses Oracle's database software to do much of the initial matching. But for hard-core data processing, the company relies on a speedy 50-node Hadoop cluster. Speed is important, because eHarmony updates the scores of its relationship matches whenever new members sign up, as well as when existing members update their profiles.

– Eric Lai

INTERFACES

The next-generation Universal Serial Bus interface, known as USB 3.0 or SuperSpeed USB, will show up next year in PCs and those peripherals that require high-speed data transfers, such as external hard drives, flash drives and LCD monitors. The energy-efficient USB 3.0 delivers data at a rate of 4.8GB/sec., a tenfold improvement over Version 2.0, and is backward-compatible with 2.0 devices. Cameras, music players and mobile phones will eventually use USB 3.0 as well.

SOURCE: IN-STAT, SCOTTSDALE, ARIZ.

BOOK REVIEW

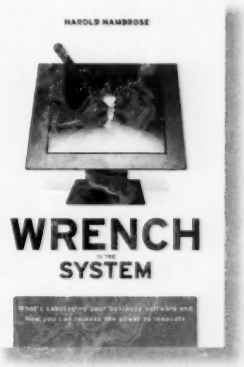
Why IT Needs User-Focused Designers

The title misses the mark, and the detours into architecture are overdone. But the new book *Wrench in the System*, by Harold Hambrose (John Wiley & Sons Inc., 2009), has one powerful message: We're building our enterprise software applications all wrong.

Think about how you feel when you use a well-designed product. It feels good, works great, makes the job easier, is enjoyable to use and requires little or no training. That certainly doesn't describe enterprise software such as ERP systems, which require a huge amount of training and force people to alter the way they work to suit the system.

Hambrose says the reason so many enterprise software projects fail is that the software is bought or built by people who are out of touch with those who will use the applications on a daily basis.

Sure, today's IT professionals and business analysts work hard to determine user requirements, but they often ask the wrong questions and get unhelpful answers. Hambrose says the missing ingredient is what he calls professional product designers. He's not talking about people who select color palettes and icons, but designers who are trained observers of human behavior and know the right questions to ask, such as the following:



- Who will be using this software?
- Will they understand the instructions and error messages?
- Why do they have so many Post-it notes sprinkled around?
- Which tasks will they perform most often?
- Can we improve the workflow first?
- Can we reduce the clutter on the screen?

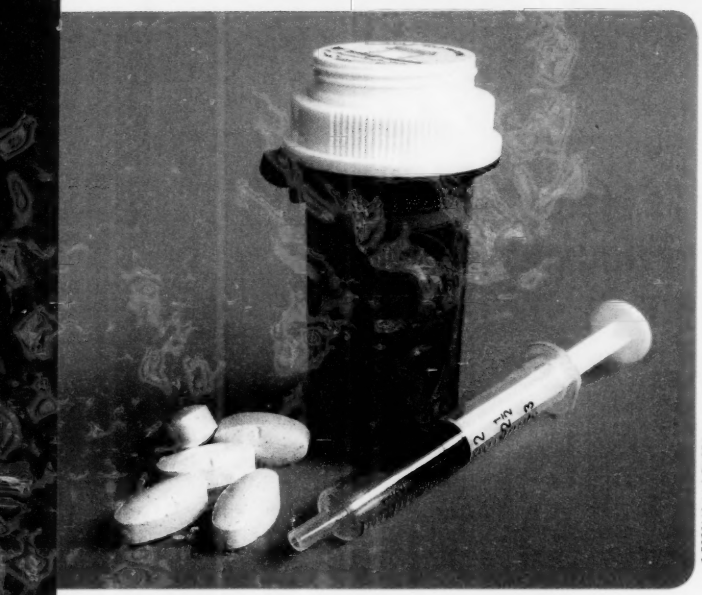
Hambrose doesn't tell us how CIOs are supposed to find the designers, human factors experts, industrial psychologists and corporate anthropologists who might be able to transform software development into user-centered design.

But he does offer this tantalizing, ambitious goal: Businesses need software "that sparks excitement in its target community of human users – excitement that their work is easier and more enjoyable, that they have become more effective, and that their employer is supplying tools that make them feel like part of a winning team."

We have a long way to go.

– MITCH BETTS

Perot E-health Push Could Prove Profitable for Dell



© FOTOLIA / LA PHOTO

Dell's Perot Systems buy is set to close just as federal spending season begins.

By Patrick Thibodeau

PEROT Systems Corp.'s focus on the health care industry could prove to be an immediate boon for Dell Inc., which late last month agreed to buy the Plano, Texas-based IT services provider for $3.9 billion in cash.

Perot has created a strong health care services operation that's now in a position to gain a good chunk of the $36 billion the federal government is poised to spend on health information exchange projects. The funding is part of the $787 billion American Recovery and Reinvestment Act of 2009 passed by Congress in February.

Health care projects accounted for nearly half of Perot's $2.8 billion in revenue last year, the company said.

Dell said it hopes to complete the acquisition not long after the Oct. 1 start of the federal fiscal year, when government agencies will begin spending the money appropriated for e-health projects in earnest. The demand for help in implementing new health care IT projects should come quickly, because the stimulus bill requires that health care providers start upgrading electronic health systems by 2015 or face federal penalties.

Shortly before the acquisition was announced, Harry Greenspun, chief medical officer in Perot's health care group, told investors at an industry conference that the government's move to boost spending on e-health systems provides enormous opportunities to IT services companies. "Most hospitals [and] most physicians' offices are very immature in their adoption of technology," he said.

Greenspun noted that Dell and Perot already jointly offer a software-as-a-service system that delivers electronic records to virtual desktops, under an agreement the two companies announced in April.

Analysts have said that the deal should make Dell more competitive with top hardware makers like IBM and Hewlett-Packard Co., which both have massive services operations.

Peter Bendor-Samuel, CEO of Everest Group, a Dallas-based consulting firm, predicted that Perot Systems will quickly provide Dell's services business with more credibility among large users. "It both significantly improves their delivery capability and tremendously improves their credibility," he said.

Bendor-Samuel agreed that Perot's health care focus should give Dell a boost, but he noted that the PC vendor is interested mostly in gaining access to more large customers. "It's great to be a dominant player in the fastest-growing segment of the economy, but I view that as a nice thing to have," he said.

Dane Anderson, an analyst at Gartner Inc., said the deal shows only that Dell is finally pursuing a broad services strategy. Dell's support operation has traditionally focused on providing services only for its own products. It has not offered broad consulting and integration services sought by large users, Anderson added.

"The opportunity in the nearest term is to bring more capabilities to the table for the Dell installed base," he said.

During a conference call announcing the acquisition, Dell Chairman and CEO Michael Dell called the move "the right acquisition" for his company, and he said that the two Texas-based businesses share several similar characteristics. "Our products, services and structures are overwhelmingly complementary," he said.

Once the deal closes, Perot will become Dell's global services delivery division. It will be headed by Perot CEO Peter Altabef.

Michael Dell said he "sees an opportunity" to cut the combined company's estimated $4 billion in costs by 6% to 8%. ■

Peter Sayer *of the IDG News Service contributed to this story.*

© FOTOLIA / LAURENT HAMELS

Google Tries New Ploy to Challenge IE's Dominance

The search firm adds a tool to embed struggling Chrome in Microsoft's pervasive browser. **By Gregg Keizer**

GOOGLE INC. has taken a new tack in its effort to become a factor in the browser business long dominated by Microsoft Corp.

Last month the company released a plug-in that embeds its Chrome browser into Microsoft's ubiquitous Internet Explorer, a move that could significantly boost its presence on corporate desktops and stick another thorn in the side of its much larger rival.

Google has so far made little headway against IE since unveiling Chrome a year ago.

Dubbed Chrome Frame, Google's new open-source plug-in is being cast as a way to instantly boost the notoriously slow JavaScript speed of IE, and to address the conundrum facing Web developers designing sites and applications that rely on Internet standards not supported by IE, like HTML 5.

In a blog post, Google engineers noted that developers often create workarounds or limit the functionality of Web applications to support IE. Chrome Frame allows them to build fully functioning applications that will run in the Microsoft browser, they said.

While Google portrayed Chrome Frame as a boon for both developers and users, others speculated that the move may be an admission that getting users, especially in large corporate sites, to switch browsers is proving harder than the company anticipated.

"Google is realizing that the potential to get people to move off IE is harder than it thought," said Sheri McLeish, an analyst at Forrester Research Inc. "Clearly, Google is gunning for Microsoft in all its businesses, but this is an unexpected path to take for what seemed like an effort on its part to offer a full alternative to IE."

Google's move brought a rapid and sharp retort from Microsoft, which warned that IE users could double their security woes if they use Chrome Frame.

Amy Bazdukas, Microsoft's general manager for IE, said that IE8 users running Chrome Frame are also unwittingly discarding all the browsing protections that Microsoft built into IE8.

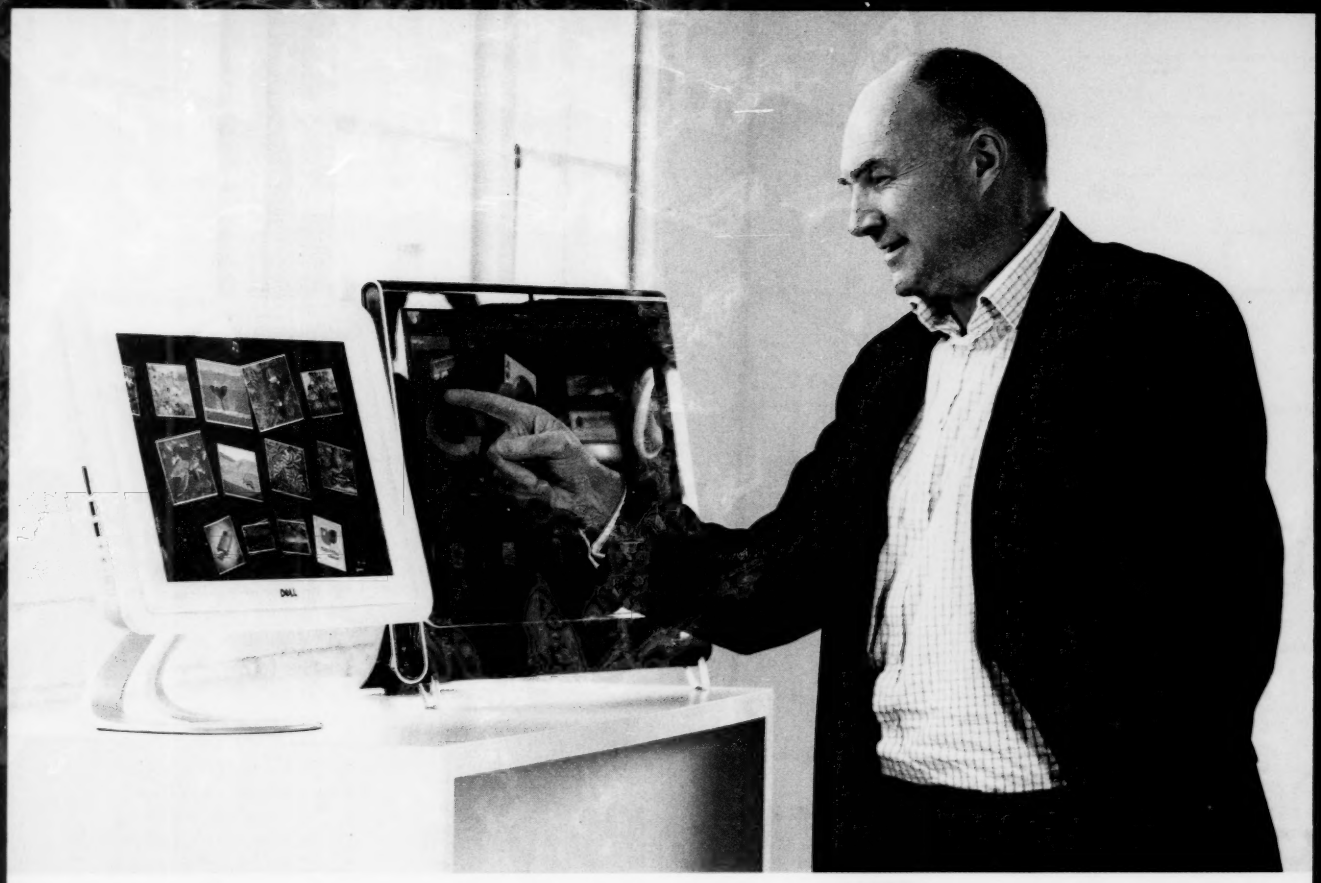
McLeish agreed that "the open question for enterprises is around security," noting that companies would have to apply updates for not only IE, but also for Google's plug-in.

Google does appear willing to take such risks in its battle with the software giant — Chrome Frame is just the latest Google offering aimed directly at a market long owned by Microsoft.

The company, which turned 11 years old last week, has used some of the massive profits gained from its dominance of the search market to venture into the applications business, introducing a set of hosted tools called Google Apps that target Microsoft's ubiquitous Office suite.

In July, Google even announced plans to take on the foundation of Microsoft's business — Windows. A new Google open-source operating system, also called Chrome, could be running Internet-centric computers like netbooks as early as the second half of next year. Many companies — from Digital Research to Borland International and Sun Microsystems — have tried and failed to challenge Microsoft in the operating system market, but analysts say that Google has the financial muscle, engineering might and industry clout to put up a realistic fight. ■

Sharon Gaudin *contributed to this story.*



PHOTOGRAPHY BY STEPHEN TILLEY

■ **THE GRILL**

Al Monro

He doesn't want you to **give up your keyboard and mouse,** but the CEO of New Zealand's NextWindow wants you to **touch your computer a lot more.**

Touch computing is hot: Consider Apple's iPhone, Microsoft's Surface computer and the soon-to-arrive Windows 7. Optical touch-screen maker NextWindow Ltd. is helping drive this technology — and making a handsome profit from it. CEO Al Monro, who joined NextWindow in 2001 after 18 years at IBM, spurred the commercialization of touch technology that has helped the privately held company grow its revenue 600% in its most recent fiscal year.

How does touch-screen technology work? [There are] six main types of touch screens. The two most popular are resistive and capacitive. Resistive is what you typically see in controlled environments, such as a point-of-sale terminal at a restaurant. It's a film on top of glass, so it is subject to damage. Capacitive is what you see on things like airport check-in kiosks.

Projected capacitive is used on the iPhone. Surface acoustic wave [technology] covers many of the same areas as capacitive. Infrared is the oldest: IBM uses this in its point-of-sale devices, as do Japanese

Continued on page 16

Dossier

Name: Al Monro

Title: CEO

Organization: NextWindow Ltd.

Location: Auckland, New Zealand (with secondary headquarters in Pleasanton, Calif.)

Favorite restaurant: "The French Café in Auckland. Exquisite!"

Most recent read: "*The Mother Tongue*, by Bill Bryson, on the history and origins of the English language. Fascinating, informative and witty."

Favorite place to visit in New Zealand: "Queenstown. Should be on everybody's must-see list. The adventure tourism capital of the world – skiing, the original home of bungee-jumping, jet-boating, white-water rafting, parapenting, etc."

Worst job: IBM's general manager for sales to the financial services industry in Malaysia during the 1997 Asian financial crisis. "Not a lot happening, and no chance to make targets!"

NEW!
Is your website ready for unlimited traffic? As the world's #1 web host, we recognize that high traffic volume plays an essential role in the success of high performance websites. Don't restrict your website with monthly traffic allowances. At 1&1, unlimited traffic is included with all Web Hosting packages for FREE!
1&1 Web Hosting
UNLIMITED
Unlimited traffic with all Web Hosting packages!
Hurry, offer ends October 31st!
PERSONAL HOSTING
Everything you need for a perfect site.
1&1® Home Package:
■ 2 FREE Domains
■ 150 GB Web Space
■ UNLIMITED Traffic
50% off! First 6 months
$6.99 per month
$3.49 per month*
Hurry, offer ends October 31st!
BUSINESS HOSTING
Powerful solution for professional websites.
1&1® Business Package:
■ 3 FREE Domains
■ 250 GB Web Space
■ UNLIMITED Traffic
50% off! First 6 months
$9.99 per month
$4.99 per month*
Special Offer: .net and .info domains just $4.49 for the first year!*
More special offers are available online. For details, visit www.1and1.com
*Offers valid through October 31, 2009. Setup fee, minimum contract term, and other terms and conditions may apply. Visit www.1and1.com for full promotional offer details. Program specifications, pricing, and availability subject to change without notice. 1&1 and the 1&1 logo are trademarks of 1&1 Internet AG, all other trademarks are the property of their respective owners. © 2009 1&1 Internet, Inc. All rights reserved.
MEMBER OF united internet
Call 1-877-GO-1AND1
Visit us now www.1and1.com
1&1®

"You're going to still keep using the keyboard and mouse. But there are going to be some things that are much more intuitive to do with touch.

Continued from page 14

subway ticketing machines.

Our technology is optical touch, and it's one of the newer ones. We put two sensors at the top of a screen that look across a pool of light. When you touch the screen, you create a blockage, and the blockage's location is triangulated.

What are the advantages of optical touch? As a screen increases in size, all of the other technologies increase in price — some proportionally, some exponentially. Not our technology. We merely need to move our sensors further apart.

Our touch screens are used in HP's TouchSmart PCs and Dell's Studio One. They picked us because we can retain image clarity. This is important, because you're going to watch DVDs [and] YouTube videos and look at photos on that screen. The other technologies, except for infrared, all use a film or coating on the glass, whereas our screens are clear.

The third advantage is that users can use a finger, a hard or soft stylus, even a paintbrush on our screens.

How was NextWindow started? The company was formed in 2000 by a serial inventor with a background in a lot of different technologies, including underwater acoustics. He's John Newton, our CTO.

I got involved when I was asked by the investors to see if the technology was worth commercializing. They wanted to license the technology. But I said, "Guys, you can't license a technology you haven't really developed yet." And so we became a manufacturer, the first to really commercialize optical touch.

For the first three to four years, we were doing overlays for very large plasma and LCD displays and big kiosks, some as large as 103 inches in size.

But you were envisioning that you could eventually get into PCs and laptops? Right from the start, we had a program to miniaturize the technology down for the volume markets. Our first breakthrough was being able to put our touch screens into LCD TVs as small as 32 inches.

In late 2005, we showed a prototype of a 19-in. touch-screen monitor to HP. We were lucky; we had a relationship with HP on another project. When that got canceled, we found the group that was looking at [developing] a new all-in-one PC with touch.

By that time, we had already shipped 2,000 to 4,000 large touch screens into the market. We'd proved our technology was very robust. But we were certainly new to the volume game.

How much are you shipping now? HP and Dell are our main customers, but we also have some LCD monitor makers. I would hope that we produce a million touch screens this year. [NextWindow produced about 400,000 last year.]

We expect to see a big uplift with Windows 7. With Windows 7 offering built-in multitouch, all of the major monitor makers will have to have a touch product in their range.

Right now, we produce interactive touch panels that go on top of LCD and plasma screens. Ideally, we would like to have relationships with the LCD panel manufacturers so that we can integrate the touch straight into the display. Customers will have much better optics.

How much more would an LCD monitor with your touch technology cost? It's a question that we all ask, because it's going to help determine the penetration of touch. If a touch-screen monitor is an extra $500, you're not going to buy it.

The other important factor: if there are some really cool apps put out by Google, Facebook, Adobe or Microsoft themselves for Windows 7. So far, it's mostly smaller ISVs.

Will touch replace the keyboard and mouse? You'll see bloggers complain, "Oh, I'm not going to stand here with my hands up all day." Of course you're not. You're going to still keep using the keyboard and mouse. But there are going to be some things that are much more intuitive to do with touch.

So, how fast are people learning how to use touch screens? Back in the early 2000s, you would put a touch screen in a shopping mall and people would stand back from it. So we told developers to scream at people to come and touch it by putting big icons with hands on them, or the words "TOUCH ME" in big letters. Even then, people would stand back, uncomfortable.

That has just fundamentally changed. A lot of credit has to go to the iPhone. It really has changed our industry. People are now coming to expect it. I'm also really excited by the launch of Windows 7.

Could fear of the H1N1 flu virus or other germs prevent people from adopting touch screens? Not a lot of people besides me use my laptop keyboard. Same with my PC's touch screen. This is more of a worry for public kiosks than the consumer market.

What about encouraging compulsive behavior among touch-screen users? You already hear about iPhone owners who can't help but clean their phones all the time. [Laughs.] I would invest in companies making Kleenex or wipe cloths.

— *Interview by* **Eric Lai**

Computerworld Daily News
The Weekly Top 10
Storage News
Security: Issues and Trends
Virus and Vulnerability Roundup
Mobile/Wireless Computing
Networking
CareerMail
IT Management
ROI (Return on investment)
E-Business
Daily Shark
Infrastructure & Control
Emerging Technologies
Disaster Recovery
SAN Developments
Legal and Regulatory Compliance
Computerworld Blogs
Storage Hardware
NAS Essentials
Wireless Networking
Networking Security
Good news travels fast with Computerworld.com newsletters.
Sign up today to get up to the minute news and analysis no matter where your day takes you.
www.computerworld.com/newsletters
COMPUTERWORLD

On sale today only
for sale
CORP
WORK

START CONNECTING WITH Mobile CUSTOMERS

Don't have a strategy for interacting with customers via their mobile phones? It's time to get one, and learn from previous mistakes.

BY MARY BRANDEL

THIS WAS certainly unexpected: When Alex Betancur, general manager of Publisher's Clearing House Online Network, looked at the sweepstakes giant's Web site logs in late 2008, he was surprised by an upsurge in visitors using mobile browsers.

What caught Betancur's eye was that the users were entering extensive information — first and last names, addresses, ZIP codes — on tiny screens. "I said to my staff, 'If this many people are going through this process on a tiny screen, this might be an avenue that needs to be addressed.' "

So Betancur asked the IT group to create a mobile-browser-friendly site, first for the iPhone and next for the BlackBerry. Port Washington, N.Y.-based PCH Online also worked with a contractor to create two game applications — a slots game and a trivia game — to be distributed via the iTunes Store.

The strategy, Betancur says, is two-pronged: Support current users who embrace the mobile Web, while also reaching out to younger smartphone users through entertainment-oriented applications. A future goal is to support "geotargeting," or delivering content tailored to specific mobile users based on their locations.

Like many companies, PCH Online is making its first foray into interacting with customers via their mobile phones. So far, it has avoided the missteps of early adopters by basing its strategy on known customer behaviors and sticking to its core competency: providing the experience of winning sweepstakes. "Our challenge is to translate the excitement of winning to the mobile phone," Betancur says.

> **"You can start thinking about payments in a different way if you know where the person is standing."**
> **CHRISTOPHER BARBER,** CIO, WESCORP

We're still in the early days of mobile customer strategies, says Julie Ask, an analyst at Forrester Research Inc., noting that companies spend less than 1% of their interactive marketing budgets on the mobile channel. But only the foolhardy will fail to establish a mobile presence by this year or next, Ask says, given the explosive increase in consumers adopting mobile devices and using them for data services. ABI Re-

Continued on page 22

LARRY GOODE ILLUSTRATION

EXCLUSIVE
ACCESS

Join us in the Inner Circle.

The Computerworld Inner Circle Research Panel was established as a way for members of the IT community to share information and gain insight into various technology topics, including new initiatives and top issues faced by IT professionals and executives.

Inner Circle panel members get exclusive access to results of the surveys on the panel site at: **www.computerworldinnercircle.com**, and are eligible for some nice cash and prize giveaways for their participation. We look forward to hearing your input!

Join for Free!

To register as a panel member, visit **www.computerworld.com/haic**

COMPUTERWORLD
INNER CIRCLE
RESEARCH PANEL

Continued from page 19

search predicts that mobile marketing expenditures will grow from $1.8 billion in 2008 to $24 billion in 2013.

"There are more retailers getting into m-commerce every day, and it will grow exponentially," agrees Tom Nawara, managing director at Acquity Group LLC, a digital marketing consultancy. And they'll approach mobile commerce in a variety of ways, including SMS texting campaigns, mobile banner ads, mobile Web sites, mobile coupons, or iPhone, BlackBerry or Android applications, he says.

DO YOUR HOMEWORK

But mobile strategies must be well conceived — based not on the behavior of "typical" mobile phone users but on the actual behavior of your own customers. "There's too much 'Let's do an SMS campaign' or 'Let's build an iPhone application,' " Ask says. "Plans need to be more substantially based on data."

Success will require the IT department's participation and involve lots of groundwork. Among other things, you must do the following:

- Study your customers' demographics and mobile behaviors.
- Explore mobile-specific functionality such as location awareness.
- Decide whether to build a site that's compatible with multiple devices or optimized for specific types.
- Make sure all of your customer channels feature a consistent look and feel, while being sensitive to the fact that the interfaces on small devices must be easy to navigate.
- Integrate the mobile applications with back-end systems that hold customer, inventory and product data.
- Learn which technologies you need to support, either in-house or through contractors. They include Objective C for iPhone applications and Java for Android systems.

At Western Corporate Federal Credit Union (Wescorp), IT is the driving force behind a mobile banking effort. That's a good thing, considering the complexity of the back-end integration between Wescorp's San Dimas, Calif., headquarters and its 1,100 credit unions.

Christopher Barber, CIO at Wescorp, is a firm believer in mobile banking, asserting that "smartphones are the PC of the future." His vision is for Wescorp to provide a mobile banking application that its credit unions can rebrand for their members. Although the membership base is aging, he says he wants to create applications that not only are useful but also demonstrate a "wow factor" that could help attract a younger demographic.

He foresees applications that, for example, allow people to make mobile payments — with the consumer's mobile device acting as an electronic wallet — support person-to-person payments, enable networking between credit union members, and allow credit unions to launch geotargeted marketing campaigns in which they can send shoppers coupons and directions to nearby stores.

"You can start thinking about payments in a different way if you know where the person is standing at the time," Barber says.

Building a front end for mobile banking on the iPhone wasn't a problem, he says, nor will it be difficult to build front ends for other devices. The challenge is securely and cost-effectively connecting transactions initiated on mobile devices to the credit unions' heterogeneous back-end systems.

But Barber says a mobile strategy is key to Wescorp's success. "If the biggest problem the credit unions are having is drawing in younger customers, and we can help, we're living up to our mission," he adds.

Scottrade Inc. also faced a big technology decision when it first started devising its mobile strategy. The online investment firm recently announced Scottrade Mobile (*m.Scottrade.com*), which lets customers manage accounts and research and process trades from any mobile device.

While Scottrade intends to someday create sites geared toward specific smartphones, it decided — based on the current behaviors of its customers, and its own customer strategy — to start with a WAP-enabled site for a broad base of users.

"It's critical that your mobile offerings align with your customer strategy," says Kevin Dodson, director of online financial services at Scottrade. "We looked at our customers and said, 'How are they accessing us, and are there new things we can offer?' "

Dodson says it was more important for Scottrade to reach the largest possible audience than it was to focus on specific devices. During a two-month beta period, customers accessed the mobile site using more than 50 different devices. It's also much less costly to support one WAP site than it is to offer multiple device-specific ones, he says.

Although PCH Online took a different tack than Scottrade, its decision to build mobile sites optimized for individual devices was equally sound, in that it was based on its own strategy and the behavior of its customers. Its logs revealed not only that a majority of its customers were iPhone users, but also that it needed to maximize the graphics and sound of the individual mobile platforms in order to create an appealing experience, says Betancur.

Another key consideration in building a mobile

PROBING Questions

When digital marketing consultancy Acquity Group audits a retailer's mobile Web site, it asks the following questions:

- **Does the site use a .mobi top-level domain?**
- **Can the site automatically detect a mobile browser or device?**
- **Does the mobile site offer different functionality than the desktop site?**
- **Is the site optimized for mobile browsers?**
- **Is the site optimized for the iPhone?**
- **Does the retailer's main Web site have a landing page that details the company's mobile offerings?**
- **Does the retailer offer downloadable apps for the iPhone or BlackBerry, or for Windows Mobile and Android devices?**

site, Dodson says, is ensuring that the user experience is consistent no matter which device is used and that it's similar to what customers encounter in other channels. At Scottrade, programmers took great pains to emulate the Web experience, he says, so that "if you know how to use any Internet browser, you already know how to use m.Scottrade."

But that doesn't mean the mobile site should be a clone of the nonmobile Web site. As Acquity's Nawara puts it: "Mobilize, don't miniaturize. The goal is not to shrink down the Web site but to understand the three to five top activities that customers really want to do on the mobile device. These needs can range from the urgent — finding an ATM — to the casual, like wanting to pass time with a game."

"If a task is not time-critical, they probably aren't going to do it on the mobile device," says Kevin Dulaney, an analyst at Gartner Inc. "If they can wait until they get home, they will."

SIMPLICITY RULES

Given the smaller real estate on mobile screens, simplicity is a virtue. "You can't use complicated navigation structures. It has to be, 'Log in, click on the task, and you're done,' " says Dodson.

According to Dulaney, complexity is what sank many early mobile efforts. His rule of thumb: For every level of navigation required on a mobile app, you lose half your audience.

"In the early days, companies were providing things like sports scores and banking, but once people saw the complexity of the application, they went back to their PCs," he says.

For example, if you have a tool that locates the cheapest gas station, don't ask people to enter an address, Dulaney says. Use a GPS chip to take care of that. "If there are a bunch of steps, people generally won't use it," he says.

Dulaney extends that thinking to mobile coupons. "If I can take a photo of a product and get a coupon, that's useful," he says. "But if I have to scan the bar code, I may not use that capability."

Of course, the only constant in a new area like mobile computing is change. "You must be willing to change, because the industry is moving so fast," Dodson says. "We're always augmenting, adding and reprioritizing as more people adopt mobile capabilities." His group is now building an application geared toward the needs of a niche group of active traders.

Keeping up with ever-changing browser technologies is also a challenge. "As networks get faster and browsers allow greater access to data, you have to move all the time to take advantage of the latest technologies," Dodson says.

The biggest misstep is failing to do your homework, Nawara says. Amidst all the hype, it's tempting to jump in too quickly, without having a firm grip on how mobility can truly benefit your business strategy and your customer base.

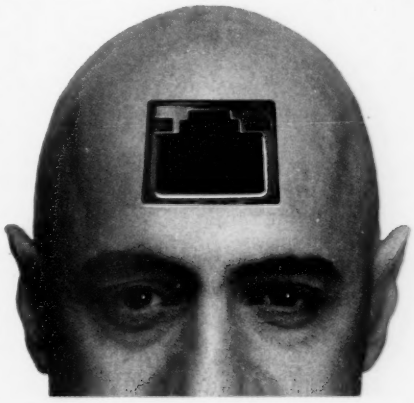
"There have been some initial forays that didn't convey the right thing for the brand or yield the desired end result," Nawara says. "That can be done away with if you do the upfront planning." ■

Brandel *is a* Computerworld *contributing writer. Contact her at marybrandel@verizon.net.*

Their computer.
Your brain.

GoToAssist® Express™ lets you view and control your customer's computer online, so you can use your expertise to instantly fix the problem. You'll solve technical issues faster while reducing travel costs and increasing customer satisfaction. Support Smarter™ with GoToAssist Express.

FREE 30-Day Trial
gotoassist.com/computer



GoToAssist®

by CITRIX®

© FOTOLIA / PAVEL LOSEVSKY

■ HARDWARE

Desktop Traffic Jam

BUT SOFTWARE CAN'T ALWAYS KEEP UP. HERE'S WHY.

UNTIL RECENTLY, you could reasonably expect this year's software to run faster on next year's machines, but that won't necessarily be true going forward. For the foreseeable future, significant performance improvements are likely to be achieved only through arduous reprogramming.

Some time ago, computer vendors passed the point of diminishing returns when it comes to processor clock speeds, and they could no longer keep increasing frequency rates. To maintain continued performance improvements, suppliers turned to installing multiple instances of the processor — multiple cores — on a processor chip, and as a result, multicore processors are now mainstream for desktops. But to realize any performance improvements, the software has to be able to use those multiple cores.

And to do that, most software will

need to be rewritten.

"We have to reinvent computing, and get away from the fundamental premises we inherited from von Neumann," says Burton Smith, technical fellow at Microsoft Corp., referring to the theories of computer science pioneer John von Neumann. "He assumed one instruction would be executed at a time, and we are no longer even maintaining the appearance of one instruction at a time."

But software can't always keep up with the advances in hardware, says Tom Halfhill, senior analyst for the newsletter "Microprocessor Report" in Scottsdale, Ariz. "If you have a task that cannot be parallelized and you are currently on a plateau of performance in a single-processor environment, you will not see that task getting significantly faster in the future," he says.

For four decades, computer performance progress was defined by Moore's Law, which said that the number of devices that could economically be placed on a chip would double every other year. A side effect was that the smaller circuits allowed faster clock speeds, meaning software would run faster without any effort from programmers. But overheating problems on CPU chips have changed everything.

"The industry has hit the wall when it comes to increasing clock frequency and power consumption," says Halfhill. Some chips are edging above 4 GHz, "but those are extreme cases," he adds. The mainstream is still below 3 GHz. "The main way forward is through multiple processors," Halfhill concludes.

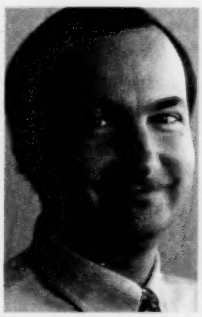
By adding more cores to the CPU, vendors offer the possibility of higher performance. But realizing higher performance through multiple cores assumes that the software knows about those cores and will use them to run code segments in parallel.

Even when the software does that, the results are gated by Amdahl's Law, named for computer pioneer Gene Amdahl. Sometimes called Amdahl's Curse, it lacks the upbeat outlook of Moore's Law. It says that the expected improvement from parallelization is 1 divided by the percentage of the task that cannot be parallelized plus the improved runtime of the parallelized segment.

In other words, "it says that the serial portion of a computation limits the total speedup you can get through parallelization," says Russell Williams, chief architect for Photoshop at Adobe Systems Inc. "If 10% of a computation is serial and can't be parallelized, then even if you have an infinite number of infinitely fast processors, you could only get the computation to run 10 times faster."

"We have to reinvent computing, and get away from the fundamental premises we inherited from von Neumann."

BURTON SMITH, TECHNICAL FELLOW, MICROSOFT CORP.



"The industry has hit the wall when it comes to increasing clock frequency and power consumption."

TOM HALFHILL, SENIOR ANALYST, "MICROPROCESSOR REPORT"

People in the know often refer to Photoshop as a model desktop application in terms of multicore support and parallelization. Williams says that Photoshop has been supporting multiprocessor operations since about 1995, but he adds that even so, much of Photoshop's code is devoted to opening and closing dialog boxes and therefore isn't subject to parallelization.

Lots of algorithms have "significant chunks" of serial code, Williams notes. "People with Ph.D.s have been working on this problem for 20 years — it is not a matter of solving it by sitting at your desk and thinking hard for a few minutes. Typically, the way around Amdahl's Law is to simply find embarrassingly parallel problems, but you can't escape the fact you're limited by the serial portion of your calculations."

Even with parallelization, Williams explains, performance doesn't scale linearly — two cores can give nearly 2x acceleration, but four cores give less than 4x acceleration. This is due to memory bandwidth issues (i.e., the RAM being slower than the processor) and delays imposed by interprocessor communications.

"We can't take advantage of eight cores without improved memory bandwidth, and I know of no application that could take advantage of 16 cores," Williams says. "Memory bandwidth is a huge issue, because after a while, you are just waiting for the memory." New processors with onboard memory controllers are offering some help, he adds. Onboard memory controllers speed up RAM access, but they also lock the CPU into using a specific type of memory.

References to Amdahl's Law may be somewhat premature, however. Aside from high-end games and video software, it may be years before parallelization for desktop applications is the norm.

When Microsoft first shipped Windows, most programs were still written for DOS, and it was a good 10 years before the industry saw more Windows than DOS software. Similarly, "most of the software on the shelf now is not parallel, and some, like word processors, never will be," says Halfhill.

On the other hand, "the presence of parallelization APIs in Windows 7 and in the Macintosh Snow Leopard operating systems will speed up the process, and the low-hanging fruit may be done in three to five years," Halfhill says. Further, not every program needs to be rewritten.

Microsoft's Smith agrees. "Not all software will be converted in five years, but we will have made significant progress," he says. "This is a more profound change than has ever been seen before in computing."

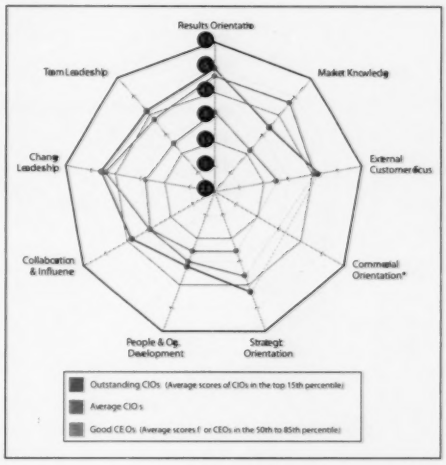
Microsoft's current desktop operating systems, Windows XP and Vista, "like most other systems," use the kernel to schedule threads on the multiple

Continued on page 28

Pathways: Turning Today's IT Professionals into Tomorrow's Business Leaders

Designed by CIO Executive Council members, Pathways is a premier leadership development program for those aggressively seeking the seat of the CIO. Pathways begins with a robust executive competencies assessment to identify individual strengths and opportunities for career growth.

The CIO Executive Council worked with talent appraisal firm Egon Zehnder International to create tools assessing key competency areas. Driven by the results of the assessment, participants pursue three distinct areas of development:



Egon Zehnder assessment tool

Business: Veteran CIOs mentor intimate groups of 8-10 participants addressing professional challenges and career advancement common to individuals at similar levels with similar goals.

Leadership: Highly interactive Web seminars led by veteran IT leaders who are members of the CIO Executive Council. Specific executive competencies are addressed by sharing practical experience and real-world advice.

Technology: Online global communities provide peer-to-peer management insights and best practices in key technology functions and areas.

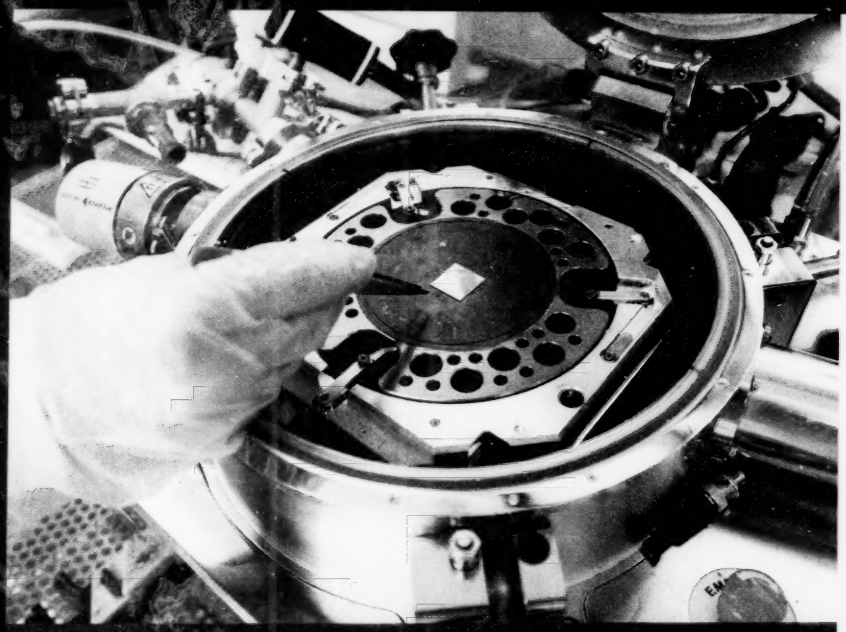
Pathways enables tomorrow's leaders to reach the next level in their careers. Visit **http://council.cio.com/CWPW** to learn more about Pathways today!

Powered by

CIO Executive Council

Leaders Shaping the Future of Business

Pathways is offered by *CIO* magazine's Executive Council, which is comprised of hundreds of the world's leading CIOs who together form the most unbiased and reality-tested peer advisory resource available to the profession. We have no vendors, consultants or analysts. Just IT leaders committed to help members save time and money and make better decisions. For more information, visit http://council.cio.com.



MIT'S HYBRID CHIP PROMISE

Scientists at MIT have used a combination of silicon and gallium nitride, a hard material frequently used in LEDs, to create a hybrid microchip that they say is smaller, faster and more efficient than today's processors.

Researchers around the world have been working for decades to create such a hybrid microchip that could help chip makers keep Moore's Law alive. "We won't be able to continue improving silicon by scaling it down for long, so it's crucial to find other approaches," says Tomás Palacios, an assistant professor at MIT, in a statement.

Jim McGregor, an analyst at In-Stat, says the new hybrid chip is important because it shows that the industry is moving beyond a singular silicon focus. "We're really in a situation where we're now playing with the entire periodic table and experimenting with different combinations of materials," he says. McGregor says he suspects that MIT's hybrid chip design could reduce leakage and thus increase chip performance.

MIT notes that Palacios, along with student researcher Will Chung, didn't add the gallium nitride as a layer on top of the silicon. Instead, they embedded it in the silicon substrate, which is an underlying layer. Because the semiconductor industry already uses the same type of silicon substrate, MIT contends that the hybrid chip could be made using today's manufacturing processes; that will make manufacturing less costly than if different substrates were needed.

"We are already discussing with several companies how to commercialize this technology and fabricate more complex circuits," Palacios says, adding that it could be several years before the technology is ready to be commercialized.

In addition, other MIT researchers have found a new way to grow carbon nanotubes that could be used to build smaller, faster computer chips. The nanotubes could replace the copper wires that connect the transistors – and may even replace the transistors themselves, further down the road.

– SHARON GAUDIN

Continued from page 26

cores of the system, Smith explains. A thread is a code segment that the computer will execute entirely before executing another thread, which may be from another application entirely.

"When a thread needs to wait for something, like I/O or another thread's output, the kernel runs some other ready-to-go thread on the freed-up core," Smith explains. "When the first thread's wait is over and it becomes eligible to run again, it will eventually get a core assigned to it."

In general, consumer operating systems "don't do anything very smart" with multiple cores, says Jim Turley, head analyst at Silicon Insider, a consulting service and newsletter in Pacific Grove, Calif. Vista is "reasonably aware" of multiple cores and is "fairly smart about dividing up background tasks and foreground tasks." Vista can run games on one or two cores while housekeeping tasks run on the others.

Rob Enderle, analyst at Enderle Group in San Jose, says Windows 7 does an even better job of it. "Windows 7 is designed to use as many cores as the machine has and will partition an application among the multiple cores — but that does not give as much benefit as if the application used the cores directly."

Windows 7 has an alternative mechanism called User Mode Scheduling (UMS), which lets thread multiplexing onto cores take place within the application itself instead of in the kernel. Multiplexing of threads is the process of deciding which thread is executed next. Handling this multiplexing within the application instead of in the operating system kernel "makes thread scheduling more efficient," Smith says.

A Microsoft blog post indicates that programmer access to UMS is possible through Visual Studio 2010, currently in beta, and involves using the operating system's Concurrency Runtime framework. Windows 7 will also be able to use 256 cores, arranged into four groups of 64.

Meanwhile, most applications will run on only one core, "so you get the benefit of having multiple cores only when running multiple applications," Enderle says. Virus checkers and utilities that run in the background "tend to not visibly drag down your machine,

whereas on a single-core processor they definitely do," he says. Two cores seem to be optimum, and a third "gives you headroom." When watching the performance meter in Windows, "you can light up two cores really easily, three occasionally and four hardly ever. Four cores are for video games, heavily threaded applications or DNA analysis."

Some Intel Corp. processors also offer a form of on-chip dual processing, called Hyper-Threading Technology, where each core can run two threads in parallel, so the software sees twice as many cores as there really are. It isn't as good as having two separate cores, and the boost you get varies greatly, but most people get a 20% to 30% boost through Hyper-Threading, according to George Alfs, an Intel spokesman.

Enderle notes that the Windows performance meter displays each core with Hyper-Threading as if it were two cores.

"What we'd all like is a magic compiler that takes yesterday's source code and spreads it across multiple cores, and that is just not happening," Turley says. "There are C compilers that make a modest dent, but a lot of research indicates that C will never take you very far, since the fundamental problem is C itself — it is inherently serial. There is no easy way to program in parallel; it's like writing poetry in Klingon."

Turley says that the world doesn't need yet another programming language. "Any third-year student worth his salt has invented one, but the trouble is getting people to adopt it — no one wants to learn a new language." If some authority would declare support for one approach, then people would rally around it, but in the meantime, there is widespread confusion and competing claims, he says. "We may have to wait for the current generation of programmers to die off and be replaced by programmers brought up on a new paradigm," Turley laments.

The easiest way to add parallelism is to call code that's already parallelized, from a library, says Adobe's Williams. The next easiest is to use bottleneck routines, or separate little routines that know only about specific pixels. "That is the way we did it for a long time," Williams says. A third way is to write a parallel version of a complicated algorithm. But "that can easily take twice as much work" as writing a nonparallel version.

"What we'd all like is a magic compiler that takes yesterday's source code and spreads it across multiple cores, and that is just not happening.

JIM TURLEY, HEAD ANALYST, SILICON INSIDER

"Memory bandwidth is a huge issue, because after a while, you are just waiting for the memory.

RUSSELL WILLIAMS, CHIEF ARCHITECT FOR PHOTOSHOP, ADOBE SYSTEMS INC.

A fourth approach is functional parallelism, "where you let the user do different things simultaneously, such as getting thumbnail images while changing meta-images," Williams explains. "Photoshop was written before system software supported that, so we don't do a lot of that. Modern operating system facilities let you do functional threading without a huge amount of effort — maybe 50% more — but converting a large algorithm written before such stuff was available is a big effort."

What's needed is not more code, but different code — and a different way to organize the application, adds Microsoft's Smith. "You must understand parallelism, and that is not always obvious."

A first step is to minimize the use of variables. "Variables are artifacts of sequential execution," Smith says. "If it is always true that A+B=C, what if someone gets in the middle of that and adds something to B so that the equation no longer holds true? You must have a consistent state where that is prevented." Traditionally, this prevention has been done by locking the variables, but Smith advocates the use of transactional memory, which does much the same thing automatically by isolating the variables from other code that's running at the same time.

If the application vendors have been slow to adjust to multicore, the public has not. According to hardware vendors, buyers these days are counting cores instead of gigahertz.

"In the past, people really cared about the frequency of the processor and about making sure they had the latest speed," says Bob Grim, a marketing executive at Advanced Micro Devices Inc. "Now we see them being more concerned about what kind of visual experience they will get."

"Gigahertz used to be the metric for buyers, but now there is tiering," agrees Glenn Jystad, senior manager at PC vendor Acer Inc. "Single-core processors are limited to entry-level systems, while dual-core is a step up, and you really start to realize performance in the quad-core category, which is now mainstream." He predicts that three-core processors, promoted by AMD, will fade away by the end of the year, since there is little price difference between three-core products and the more powerful quad-core systems.

Meanwhile, performance issues aside, vendors favor multicore processors for their ability to help reduce system power consumption. If three heads of a quad-core system have nothing to do, "you can put them to sleep," Turley says. "Being able to throttle back is one of the charming side effects of multicore processing."

"Using multiple cores will let us get more performance while staying within the power envelope," agrees Jystad. "Today's 95-watt Intel quad-core processor is substantially more powerful than the 95-watt Pentiums of three years ago."

Nonetheless, says Intel's Alfs, "Moore's Law continues. We continue to integrate more and more capability onto the processor." But the chief result, he predicts, will be more cores. ■

Wood *is a freelance writer in San Antonio. Contact him at lwood@texas.net.*

AVOID AN E-DISCOVERY DISASTER

Be prepared to preserve data when your company is heading to court.

By Greg Lawn

YOU KNOW that feeling you get when you realize you forgot to do something important? That's how you'll feel if you overlook something during the e-discovery process when your company is involved in legal proceedings. And the consequences could be devastating. Judges don't take kindly to lost or destroyed evidence, so your company could be hit with multimillion-dollar fines or lose an otherwise winnable court case. Here are some best practices to help you avoid such a scenario.

- **Talk to your legal department on a regular basis.** Let's face it — the legal department isn't an IT manager's favorite place to spend time. However, it's vital that legal and IT are on the same page when it comes to information management policies and e-discovery processes. One benefit of meeting with in-house counsel regularly is that you'll get to know the key contacts so you'll be prepared to act fast if your company does face legal action. And the best part is that it greatly reduces the surprises you could face down the road.
- **Make your information-handling practices routine and consistent.** It's critical to be able to prove in court that your standard operating procedures are maintained and followed by every individual in your company.

For example, waiting until your backup system pages you because it needs a tape mount and then grabbing the last few tapes from an old backup that you "know is out of date" and sticking them in for overwrite should not be routine

© FOTOLIA / MOODBOARD

or consistent. Trust me; you don't want to have to explain later why you chose those specific tapes to overwrite. And no, "because they were on top" isn't an acceptable or defensible answer.

If your data retention policy requires the destruction of data, then it's even more critical for you to be unfailingly consistent with your approach. Destroying data on time is just as important as backing it up.

■ **Keep a trail.** Backup logs, system and event logs, shipping receipts, help desk tickets, work requests, e-mail, meeting notes, journal entries, and yellow sticky notes can all be resources for you to draw on when (not if) you need to recall or prove what you did or didn't do in the course of a typical day.

Once an e-discovery project starts, you'll hear the term *chain of custody* often. Basically, this means that you need to know — and that you should be able to prove — who had the data and when. The tricky part is that the chain has to start long before the e-discovery matter begins, so you need to take steps now to ensure that you can track the chain of custody in the future. For instance, when an employee creates a file on your network and then you back it up, you need to keep track of the original author. Most backup software does this, or, at the very least, you can tell from the directory structure whether the file was in someone's home directory.

Your description of the chain of custody should indicate when a file was a shared resource for a group of users, as opposed to something held by a specific individual. For example, you may know that a file named StatusReport2.doc was created by Ann Smith, but she saved it in a shared folder where her seven teammates could, and frequently did, open it and enter their own comments. In that case, you'd describe the group (Ann's Team) that had access to the documents as the custodians. When you back up the file and send the tapes off-site, you are the custodian.

■ **Understand what spoliation is.** Although you should get a specific ruling from your legal department, it's generally understood that spoliation is the deliberate or negligent destruction, withholding or hiding of evidence when an investigation or litigation is under way. At the risk of stating the obvious, it's a big no-no.

It doesn't matter whether you think certain data is important; once the e-discovery process has begun, your opinion has no weight. You can't risk charges of spoliation by deleting potential evidence. In *Arista Records Inc. v. Sakfield Holding Co.*, the court found that the "[d]estruction of evidence raises the presumption that disclosure of the materials would be damaging." In general, this means that whether or not the deleted material was indeed damaging to your company, the fact that you destroyed it means the law automatically assumes it was damaging. Furthermore, key to the claim of spoliation is the notion that the person had knowledge of the investigation or litigation. In some cases, the mere anticipation of an investigation or litigation is all that is needed.

■ **Be ready to preserve all data, immediately.** Now that you know what spoliation is, you know how important it is to be prepared when the e-discovery process starts or you receive a "hold" or preservation request — a petition asking that certain data never be deleted or changed. If you have automatic cleanup or purging processes, you should suspend or discontinue them. If you don't know how much data is subject to the hold request, which is a typical scenario, you should stop all data destruction to be on the safe side.

You'll certainly want to be in very close contact with your legal department when a hold request comes along. Prepare a plan for responding to such a request, and test it just like you test your restore procedures.

■ **Know what you have.** Do you know where your data is? Do you think you have a handle on your data? Think again. I can't tell you how many times I've heard someone say, "They've found another server/drive/tape/flash drive."

IT staffers do a great job of taking care of current data, but as soon as data is put on a removable drive, it's out of your control. There's a lot of content out there that isn't managed, and every bit of it is potentially subject to discovery in a lawsuit. Think about the last time you upgraded the hardware for an application server; what did you do with the old hardware? Is it sitting in a closet, or maybe still in the old rack just in case you have to fall back to it? The upgrade project is long over, but I bet the server still has data on it. Sure, the data is "out of date," but in terms of e-discovery, it could be a hornets nest.

It's absolutely critical to keep track of backups and archives. Make sure you know where the tapes are stored before they're sent off-site, and have a process in place to get them back once they leave the premises. Companies have faced sanctions for misplacing hard drives and then finding them later in the e-discovery process. Even that "busted old drive" can be critical when viewed in a legal light.

While these tips may not reduce the volume of e-discovery requests you face, they should streamline the process and give you peace of mind when e-discovery does arise. ■

Lawn *is manager of custom services in the Houston office of FTI Consulting Inc. Contact him at greg.lawn@fticonsulting.com.*

RESIST THE POWER OF THE MOUSE

Making the mistake of copying pictures of last weekend's camping trip into the "corporate sales" folder instead of the "camping" folder is one thing. But copying corporate files to the wrong folder during an e-discovery project can not only jeopardize your chain of custody, but also expose sensitive data to the wrong people. In short, it can be a really big deal. In court, a mistake like that will cast doubt on your procedures and allow the other side to question whether your methods were consistent in the first place.

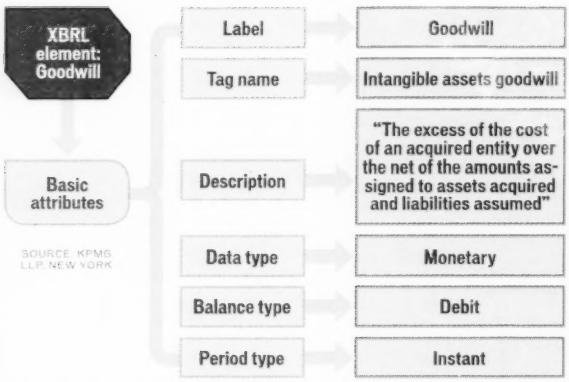
Using Windows Explorer and a mouse to copy or move files works great for most purposes, but in an e-discovery project, you'll need something that's more reliable and auditable. Tools such as Microsoft Corp.'s Robocopy, Access Data Corp.'s Forensic Toolkit and Guidance Software Inc.'s EnCase are popular alternatives.

– GREG LAWN

XBRL

Extensible Business Reporting Language

The SEC mandates it. How does it work? **By Russell Kay**



Each XBRL element has six standard attributes that define the financial term, the data type, and whether it's a debit or credit transaction.

XBRL is a version of XML defined to meet the requirements of business and financial information. With XBRL, unique identifying tags are applied to financial data items.

More than simple identifiers, these tags provide a range of information and allow labels in any language, as well as accounting references or other subsidiary information. XBRL can show how items relate to one another, how they are calculated, and whether they fall into particular groups for organizational or presentation purposes. XBRL is extensible, so companies can adapt it to meet special requirements.

XBRL won't change what is reported, only *how* it is reported. With XML tagging, the information in a business report is computer-readable and can be extracted, searched and analyzed (even if it's from multiple sources and written in different languages).

COMPUTERWORLD.COM
WANT MORE?
For a complete archive of QuickStudies, go to **computerworld.com/quickstudies**

HOW XBRL WORKS

In XBRL, individual data items are called elements, which are combined into taxonomies (dictionaries) defined by schemas and relationships called linkbases. An XBRL instance document is a business report in an electronic format created according to the rules of XBRL.

Elements are represented in this format: <liability>1,000</liability>. The word *liability* inside angle brackets is called a tag. Between the opening and closing tags is a value. A computer could understand from this example that the number 1,000 is tagged as a liability, but the computer must be programmed to understand the term *liability* and what values it could have.

Taxonomies are categorization schemes, or dictionaries, that define the specific tags for individual data items. Because different countries have different accounting regulations, each may have its own taxonomy for financial reporting.

Organizations can also create specialized taxonomies to cover their own business reporting needs, so "there is no need to force a reporting concept into an ill-fitting box," Big Four accounting firm KPMG LLP explains on its Web site. "XBRL is not a standard chart of accounts. It allows the standardization of common business reporting concepts while providing flexibility to extend the vocabulary to meet individual circumstances."

Schemas contain information on the elements in a taxonomy, their names, IDs and other characteristics, and how a computer should treat them. An XBRL schema is a container with an unstructured list of elements and references to linkbase files.

Linkbases provide information about relationships between elements and link them with specified external resources.

Definition

XBRL (Extensible Business Reporting Language) is an XML-based language for business and financial data. XBRL provides identifying tags for individual items, allowing computer programs to sort data, analyze relationships and generate output. The U.S. Securities and Exchange Commission has mandated that all public companies must report their earnings using XBRL by 2010.

Potential Problems

With XBRL, the old adage "Garbage in, garbage out" still applies. An April 2009 study at North Carolina State University evaluated the accuracy of XBRL filings for 22 companies that participated in the SEC's voluntary XBRL filing program in 2006. A comparison of XBRL filings against paper-based reports revealed multiple errors in signs, amounts, labeling and classification. The study called these serious problems, because users will have a hard time spotting such errors among the computer-readable XBRL data.

SEC REQUIREMENT

The U.S. Securities and Exchange Commission, a big proponent of XBRL, has required companies with market capitalizations of $5 billion or more to use XBRL since June 2008, and it will require all public companies to use XBRL by next year. XBRL's standardized tags should allow investors and regulators to more easily analyze and compare financials from various companies. ■

Kay *is a* Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

IP Protection May Get Money It Needs

An audit spotlights the need to **protect intellectual property.** If those at the top are saying so, **funds could finally materialize.**

Trouble Ticket

AT ISSUE: The audit group wants more done to safeguard intellectual property.

ACTION PLAN: Dust off the IP protection road map.

FROM THE day I arrived at this company, I've had the protection of our intellectual property on my radar. It's been a part of my information security road map, but I've never been able to fully implement my plans, because I haven't had the resources I needed. Now those constraints might disappear.

This prospect has arisen thanks to the company's internal audit group. That group has always been focused on financial audits, but it just completed a comprehensive audit of other areas, and IP protection emerged among the top three challenges we face. The auditors report to the board of directors, who naturally have a lot of influence over the executive staff. That means money could start flowing to new priorities, and I want to be first in line. But I'll have to dust off (and possibly modify) that road map for IP protection.

My larger security road map focuses on four main areas: people, processes, policies and technology. IP protection is a factor in each one. Here are the basics of what I think we need in each area to ensure the security of our IP.

People: The main goal here is to change employees' behavior, which will require helping them understand what IP protection means, how to recognize IP, how to protect it and how to spot indicators of abuse. I've always wanted to create an interactive IP protection training video that would let us gauge employees' understanding of the material as they go along. So far, I've only had the resources to put together a series of PowerPoint slides.

Processes: We need to make sure that the processes we use to identify, handle and protect IP and to report suspicious activity are optimized for the goal of safeguarding the IP. I've already deployed technology that could provide a process for protecting data and detecting breaches. But it hasn't been widely taken up, and I need to get the momentum going to expand its use.

■ I've never been able to fully implement my plans, because I haven't had the resources.

Policies: I've already written plenty of policies; that doesn't cost anything. What we need to focus on is disseminating those policies to employees. A policy that sits unread on a Web site does no good. We can tell employees to read the policies, but that won't do much good either. That's because prosecution of an employee who steals IP can't go forward unless there's evidence that he knew he wasn't supposed to do something like send IP to his home e-mail account. What we need is to have the employees state in writing that they understand our IP protection policies.

Technology: This is my favorite part. Communicating and educating can only go so far. Remember how we tried to get people to create strong passwords in the early 1990s? A lot of us tried to drill the idea into users' heads with posters, presentations, mouse pads and e-mail reminders — to no avail. What finally got us 100% compliance was deploying technology that forced users to create strong passwords.

When it comes to IP protection, there are technologies that can force users to protect data and tools that can detect transfers of IP. Other technologies restrict the types of devices users can attach to their PCs or encrypt entire hard drives. Digital rights management, which we already have in limited deployment, lets document creators assign restrictions and permissions to documents. And one of my favorite technologies, which I have managed to deploy, is data leak prevention.

Those technologies are great, but deploying them usually requires time, money and other resources, especially in an environment as nonstandard as ours. That's why it's so encouraging to think more resources are going to become available. Over the next few days, I'll be brushing off and fine-tuning my IP protection road map so it will be ready when the bank opens. ■

This week's journal is written by a real security manager, ***"Mathias Thurman,"*** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

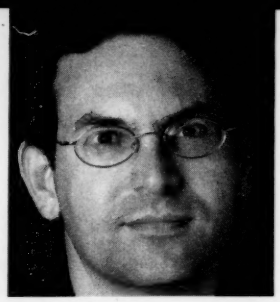
COMPUTERWORLD.COM

JOIN IN

To join in the discussions about security, go to **computerworld.com/blogs/security**

■ OPINION

John D. Halamka



E-health Security Is A Delicate Balance

PRIVACY AND SECURITY are foundational to health care reform. Patients will trust electronic health care records only if they believe their confidentiality is protected via good security.

As vice chairman of the federal Healthcare Information Technology Standards Committee, I have been on the front lines in the debate over the standards and implementation guidance needed to support the exchange of health care information. Over the past few months, I've learned a great deal from the committee's privacy and security workgroup. Here are my top five lessons:

1. Security is not just about using the right standards or purchasing products that implement those standards. It's also about the infrastructure on which those products run and the policies that define how they'll be used. A great software system that supports role-based security is not so useful if everyone is assigned the same role and its accompanying access permissions. Similarly, running great software on an open wireless network could compromise privacy.

2. Security is a process, not a product. Hackers are innovative, and security practices need to be constantly enhanced to protect confidentiality. Security is also a balance between ease of use and absolute protection. The most secure library in the world — and the most useless — would be one that never loaned out any books.

3. Security is an end-to-end process. The health care ecosystem is as vulnerable as its weakest link. Thus, each application, workstation, network and server within an enterprise must be secured to a reasonable extent. The exchange of health care information between enterprises cannot be secured if the enterprises themselves are not secure.

4. The U.S. does not have a single, unified health care privacy policy – it has 50 of them. That means that products need to support multiple policies — for example, those of a clinic that uses simple username/password authentication and those of a government agency that requires smart cards, biometrics or hardware tokens.

■ Imposing 'nuclear secrets' technology on a small doctor's office is not feasible.

5. Security is a function of budget. Health care providers' budgets vary widely. New security requirements must take into account the implementation pace that the various stakeholders can afford. Imposing "nuclear secrets" security technology on a small doctor's office is not feasible. Thus, the privacy and security workgroup has developed a matrix of required minimum security standards to be implemented in 2011, 2013 and 2015, recognizing that some users will go beyond these minimums.

In debating how to enhance security for all stakeholders without creating a heavy implementation burden, the workgroup has come up with these ideas:

■ All data moving between organizations must be encrypted over the wire. Data moving in an organization's data center should be encrypted if open wireless networks could lead to the compromise of data as it is moved inside the organization. There is no need to encrypt the data twice — if an organization implements appropriate secure wireless protocols such as WPA Enterprise, the data can be sent within the organization unencrypted.

■ All data at rest on mobile devices must be encrypted. Encrypting all databases and storage systems within an organization's data center would create a burden. But ensuring that devices such as laptops and USB drives, which can be stolen, encrypt patient-identified data makes sense and is part of new regulations such as Massachusetts' data protection law.

Such proposals strike a delicate balance, for while attaining the goal of care coordination through the exchange of health information depends on robust security technology, infrastructures and best practices, it can't succeed if safeguarding patients' privacy is unduly cumbersome. ■

John D. Halamka *is CIO at CareGroup Healthcare System, CIO and associate dean for educational technology at Harvard Medical School, chairman of the New England Health Electronic Data Interchange Network, chairman of the national Healthcare Information Technology Standards Panel and a practicing emergency physician. You can contact him at jhalamka@caregroup.harvard.edu.*

SNW SNIA COMPUTERWORLD

Best Practices IN STORAGE

AWARDS PROGRAM

Sponsored by

Sun microsystems

Congratulations to Our Finalists!

SNW, in conjunction with Computerworld and the Storage Networking Industry Association (SNIA), proudly presents the SNW "Best Practices in Storage" Awards Program. This program honors IT user "best practice" case studies selected from a field of qualified finalists.

The finalists in each of the following categories are:

Green Computing, Energy Efficiency and the Data Center

- Avnet, Inc., Phoenix, Arizona
- FICO Corporation, Minneapolis, Minnesota
- Infosys Technologies Limited, Bangalore, India
- Lawrence Livermore National Laboratory, Livermore, California
- MetLife, Troy, New York

Planning, Designing and Building a Strategic Storage Infrastructure

- Barclaycard US, Wilmington, Delaware
- GlaxoSmithKline Biologicals, Wavre, Belgium
- MetLife, Troy, New York
- Sanborn, Colorado Springs, Colorado
- TACO, Cranston, Rhode Island

Storage Resiliency, Data Protection and Recovery

- ABD Insurance (now Wells Fargo Insurance Services), San Francisco, California
- FICO Corporation, St. Paul, Minnesota
- Rogers Stirk Harbour + Partners (RSHP), San Francisco, California
- Strand Associates, Madison, Wisconsin
- Wentworth-Douglass Hospital, Dover, New Hampshire

Storage Virtualization and Cloud Computing

- Budd Van Lines, Somerset, New Jersey
- Citi, New York, New York
- Cloud 10 Corporation, Centennial, Colorado
- Medtronic, Inc., Minneapolis, Minnesota
- Service Corporation International (SCI), Houston, Texas

Technology Innovation and Promise

- Five Point Capital, San Diego, California
- Marketing Architects, Minneapolis, Minnesota
- Shopzillla, Los Angeles, California
- State Street Corporation, Boston, Massachusetts
- Tickets.com, Costa Mesa, California

The SNW "Best Practices in Storage" Award Recipients will be Honored on Tuesday, October 13th.

Thank you to our "Best Practices in Storage" judges for SNW Fall 2009:

- Rick Bauer, SNIA
- Julia King, *Computerworld*
- Ellen Lary, Lary.com
- Richie Lary, Lary.com
- Lucas Mearian, *Computerworld*
- Brett Michalak, Tickets.com
- Norman Owens, Carlson Companies
- John Webster, Illuminata, Inc.
- Laurence Whittaker, Hudson's Bay
- Ben Woo, IDC
- Terry Yoshii, Intel

Judging Criteria

Judges evaluated and ranked the finalists in each category against a set of criteria including:

- Financial return and measurable payback.
- Strategic importance to the business.
- Substantive customer impact (service, retention, acquisition).
- Positive impact on other business/organization units.
- Addresses system and department interoperability issues and heterogeneous platform integration challenges.
- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future storage networking solution initiatives.
- Supports the efficient and reliable data, information and application sharing/access between personnel, departments and divisions.
- Addresses challenges of data, information and application security, recovery and business continuity.

Career Watch

Salaries on the Decline

Janco Associates Inc. found mostly bad news for IT professionals in its midyear review of salaries. As shown below, salaries for many higher-level IT positions declined at large enterprises. As bad as that looks, though, the falloff in pay levels was much steeper for those working at midsize organizations, according to Janco.

MOSTLY DOWN
Average total compensation (base salary plus bonuses) in large enterprises for selected positions:

	January 2007	June 2009	Change
CIO	$174,979	$172,505	-1.41%
Vice president, security	$152,806	$151,102	-1.12%
Vice president, administration	$130,442	$132,275	1.41%
Vice president, consulting services	$140,809	$133,895	-4.91%
Vice president, information services	$144,928	$141,424	-2.42%
Vice president, technical services	$140,728	$148,808	5.74%
Director, IT planning	$124,928	$123,299	-1.30%
Director, production/ data center	$132,823	$131,635	-0.89%
Director, systems and programming	$146,712	$149,835	2.13%

SOURCE: JANCO ASSOCIATES INC. 2009 MIDYEAR IT SALARY SURVEY, JUNE 2009, USING DATA FROM JANCO ASSOCIATES' COMPENSATION DATABASE FOR INFORMATION TECHNOLOGY PROFESSIONALS

■ Q&A

Katy Piotrowski

The author of **The Career Coward's Guide to Career Advancement** discusses how to get your company to provide training, even during the recession.

Many employees feel uncomfortable asking for training, even in the best of times. How can they do it in the midst of a deep recession? Training can take many forms, from signing up for an entire MBA degree to job-shadowing a co-worker to learn how she handles a specific process. If you're truly committed to additional training, think creatively about how you can boost your skill set in the most cost-effective way. Come up with a list of at least five possibilities, with a range of costs, in order to give your employer some options.

Next, schedule a meeting with your boss to talk about your hopes and ideas. If it's a degree you want to work toward, be sensitive to the current economic challenges and present your request one class or two at a time. Talk specifically about how each class will help you improve your performance. If you need facts about the results you'll achieve, interview the class instructor for details. For even more ammunition, speak with former students about the payoffs they've already realized.

If funding is super tight, offer to split the cost of the course. Other strategies are to identify cost-cutting measures within the company that will offset the cost of your tuition, or duplicate the value of what you learn by sharing your new knowledge with other people in the company through regular brown-bag training sessions. The bottom line is to emphasize that you believe your training will make you more productive, ultimately bringing additional income to the company.

Don't some employers worry that training just makes it easier for employees to get better jobs elsewhere? Savvy managers know that well-chosen training will result in a net-gain payback to the company, even before an employee might leave for another opportunity. Keeping this in mind, it's wise to ask in which areas your manager would like to see you develop your expertise. Listen carefully about the skills your boss is looking to add to her team's toolbox. Then, as you evaluate training programs, aim to incorporate your employer's needs with your own career training goals.

If your employer does voice a concern about you leaving once you've completed your training, ask what would make her more comfortable in committing to the expense. She may say, "I'd like to know that you're going to stick around for at least a year." And a 12-month commitment may be a worthwhile trade-off in exchange for a generous training perk.

If there's just no money available for training, doesn't the employee who asks for it risk being regarded as somewhat clueless? It's been said that you can ask for anything, as long as you do it in the right way. For instance, preface your training-support proposal with, "I know some of what's happening on the business side of things, but not everything. Please don't take my request as a form of disrespect. I'm thinking both about the company's future success as well as my own, and I want to be adequately trained to support both."

Keep in mind, too, that training is viewed with respect by almost everyone. Although you may not receive immediate approval for your request, your boss will remember that you want to improve yourself, and when the purse strings do loosen again, you may be near the front of the line for a payout.

– JAMIE ECKLE

PAGE COMPILED BY JAMIE ECKLE.

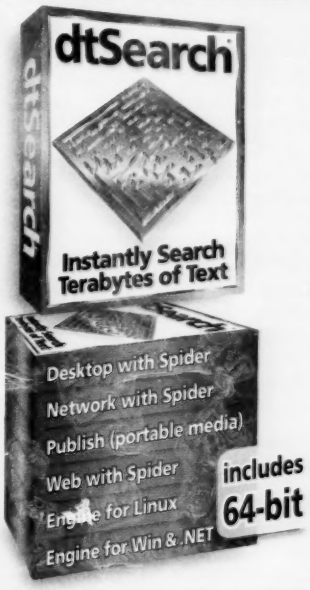
Your message works in the Marketplace section!

To advertise, call or email Enku Gubaie at:

508.766.5487

egubaie@idgenterprise.com

Instantly Search Terabytes of Text



- 25+ full-text and fielded data search options (with Unicode support for hundreds of international languages)
- Built-in file parsers / converters highlight hits in popular file types
- Spider supports static and dynamic web data; highlights hits with links, formatting and images intact
- API supports .NET, C++, Java, SQL, etc. .NET Spider API

The Smart Choice for Text Retrieval® since 1991

"Bottom line: dtSearch manages a terabyte of text in a single index and returns results in less than a second" — *InfoWorld*

dtSearch "covers all data sources ... powerful Web-based engines" — *eWEEK*

"Lightning fast ... performance was unmatched by any other product" — *Redmond Magazine*

See www.dtsearch.com for hundreds more reviews, and hundreds of developer case studies

Fully-Functional Evaluations

1-800-IT-FINDS • www.dtsearch.com

MARKETPLACE

Contact Enku for more information!

IT Opportunities

Due to rapid growth, we have the following positions available:

Programmer Analyst: Analyze, design, develop, code, test and maintain database management systems. Must have at least a Bachelor's degree and 3+ years of experience and the ability to use Mainframe, DBA, AS400 and Client-Server Tools.

Project Managers/Leaders: Lead a team of programmer analysts and database administrators on development and maintenance of hardware and software applications as well as be responsible for project planning and quality assurance. Must have a Bachelor's degree and 5+ years of experience and the ability to use Mainframe, DBA, AS400 and Client-Server Tools.

Business Development Managers/Directors: Manage sales activities and achieve sales quota for assigned territory. Help Syntel's sales leadership in planning and rolling out an inside sales strategy. Must have a Bachelor's degree and 3+ years of experience.

All positions are located throughout the U.S. and travel is usually required.

Above positions commonly require any of the following skill sets:

Mainframe: IMS DM/DC or DB2, MVS/ESA, COBOL, CICS, Focus, IDMS or SAS.

DBA: ORACLE or SYBASE DB2, UDB

Client-Server/WEB: Ab-initio • Oracle Applications & Tools • Websphere • Lotus Notes Developer • VB, Com/Dcom, Active X • Web Architects • UNIX, C, C++, Visual C++, C#.NET, ASP.NET, VB.NET • SAP/R3, ABAP/4 or FICO or MM & SD • IEF • Datawarehousing and ETL tools • WiNT • Oracle Developer or Designer 2000 • JAVA, HTML, J2EE, EJB • RDBMS • PeopleSoft • PowerBuilder • Web Commerce

AS400: RPG, ILE, Coolplex

Please forward your cover letter and resume to: Syntel, Attn: Recruitment Manager
525 E. Big Beaver, Ste. 300
Troy, MI 48083
E-mail: syntel_usads@syntelinc.com EOE

SYNTEL
www.syntelinc.com

Business Systems Analyst, Plainsboro, NJ & other client locations: Perform tech & functional analysis, systems support, analysis, design of specification, configuration, documentation, testing, & implementation using RUP, Waterfall, Agile, Oracle, SQL Server, Sybase, MySQL, IIS, Weblogic, Websphere, Tomcat, J2EE, C, C++, ASP, VB, XML, Linux, Unix, & Windows 2000/XP. BS/Equi in CS, MIS, CIS, Eng (any field), Business, Technology, Math, or related W/ 2yrs exp. Mail resume Smart IMS, 103 Morgan Ln, Plainsboro, NJ 08536 or email: jobs@smartims.com & ref PMR1018

Vision IT Service has openings for System Administrator/ Analysts, S/W Engineers or DBA using Oracle, SAP, DB2, Java, VB.Net, WebLogic, WebSphere etc per project requirements. Minimum MS or BS+1-5yr IT exp. Travel required. Apply hr@visionit.com.

Livermore Software Technology Corp (LSTC) seeks software developers, scientists in area of Fortran, multimaterial Eulerian fluids. Require MS/BS with 1-5yr exp. Travel maybe required. Send resumes to 7374 Las Positas Road Livermore, CA 94550. No calls.

Software Engineer, Plainsboro, NJ & other client locations: Perform technical & functional analysis, systems support, analysis, design of specification, configuration, documentation, testing, & implementation using SAP R/3 & SAP modules such as APO, SD, MM, FI, AM, with ABAP/4. Duties entail working with Java, C, C++, Visual Basic, PL/ SQL, Windows NT/2000, & UNIX. MS/Equi in CS, MIS, CIS, Eng (any field), Business, Technology, Mathematics, or related W/exp. Mail resume Smart IMS, 103 Morgan Ln, Plainsboro, NJ 08536 or email: jobs@smartims.com & ref GMR1010

ITek People seeks software engineer/programmer to customize applications using various tools per project requirements. Minimum is MS or BS with 5-yr exp. Travel required. Send resume to prasad@itekpeople.com

Westernacher seeks Practice expert to Design Enterprise Architecture, Develop IT systems and Applications using ERP, SAP skills. Work Location: Dearborn, MI. Send resume to 8 Grove St, Ste 200, Wellesley, MA 02482.

With 35 branch offices located across the US, COMSYS is actively recruiting for the following positions.
Programmer Analyst– metro St. Louis, MO– Code # SL170
Systems Engineer – metro Boise, ID - Code # BO120
Programmer Analyst– metro Chicago, IL– Code # CH150
Roving employment to varying jobsites throughout the US. Please refer to appropriate job code when submitting resume to: COMSYS, Attn. Nancy Theriault, 15455 N. Dallas Pkwy. Ste 300, Addison, TX 75001. EOE /MF/DV

Systems Analyst. Robbinsville, NJ and other client locations: Involve in all phases and aspects of Software Development Life Cycle including, analyzing, designing, developing, implementing, and customizing applications and systems based on user needs using SQL Server, Oracle, Teradata, DB2, Toad, SQL Navigator, Crystal Reports, Erwin, VC++, VB, VB.Net, C#, Pro*C, Microstrategy, Sharepoint, Silk Test, WinRunner, Test Director, Quality Center, PVCS, MS Project, Visio,Windows 2000/ NT/XP, Unix and Linux. Bachelors or Equivalent in Computer Science, MIS, CIS, Engineering (any field), Business, Technology, Mathematics or related field with five years experience. Salary DOE. Email your resume to srini@ilogic-inc.com or mail to Ilogic, Inc, 214 Union Street, Robbinsville, NJ 08691.

Software engineer to design, develop and test computer programs for business apps; analyze software requirements to determine feasibility of design; direct software system testing procedures. Requires: Bachelors Degree, educational or functional (3 years experience 1 year of college) equivalent, or a foreign equivalent degree with a combination of educational and/or functional equivalence in Engineering, Electrical Eng., Comp. Sc., MIS or related field and 2 years experience as a software engineer or computer programmer. Working Conditions: 8 A.M. to 5 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Elite Careers, LLC, 1910 Cochran Rd, Manor Oak 2, Ste 230, Pittsburgh, PA 15220, Attn: A. Tedesco, Job # 081409.

Webeez Inc. located in Arcadia, CA seeks a Software Engineer with Masters Comp Sci & 1 yr exp in Systems Analysis, Software Design. & Programming. Must be able to read/write Mandarin Chinese. Mail resumes to HR Administrator at 77 Las Tunas Rd #102 Arcadia CA 91007 or email hr@tours4fun.com <http://www.tours4fun.com> .

Sr. Programmer Analyst: Plan, design, develop, create, test and modify computer applications software and specialized utility programs. Analyze user needs, develop software solutions and design databases. Apply w/2 copies of resume to HR, Ecbytes Inc. 15 Corporate Place South, Suite # 353 Piscataway NJ 08854.

Labor Certification Ads

Are you an individual, agency or law office needing to place ads to fulfill legal requirements?

Let us help you put together an efficient, cost effective program that will help you place your ads quickly and easily.

For more details, contact us at:
800.762.2977

IT|careers

Shark Tank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Child's Play

This employee brings his 7-year-old to work for the day because of an unexpected day-care problem, reports an IT pilot fish on the scene. "Our work is a retail business, but we're OK with this sort of thing once in a while," fish says. "About midafternoon, that same employee called up to complain about one of the terminals not working correctly while he was trying to help a customer. 'Our idiots in IT can't even keep our computers running,' was the gist of the comment. Upon researching the problem, we found that the network cable to this terminal had been neatly cut in two. Interesting problem, considering that the cable was in a bundle and concealed under the lip of the counter. Come to find out that the complaining employee's son had grown bored after a day at the office, grabbed a pair of scissors, and started cutting anything in sight – one of those things being the network cable to the terminal that his father was trying to use. We didn't hear a whole lot of complaining from him about 'idiots in IT' after that. Good thing the kid didn't get hold of one of the power cords!"

At Least They Replied

Pilot fish is new to his job as "IT communications manager" – he's the guy who sends the memos about IT policy to users at this university. "I was asked to communicate to the campus community that there was a phishing e-mail circulating on campus," fish says. "I dutifully wrote a message saying in no uncertain terms that they should never send their usernames and passwords to anyone via e-mail. As part of the communication, I included the text of the phishing attempt so that the audience would know what one looks like. Within minutes of sending the 'don't send your password to anyone' message to all of our students, my in-box was flooded with responses from students sending me their campus passwords, their Gmail passwords, their Yahoo passwords. One even sent me his AIM log-in information. These are our future leaders?"

Aha!

This pilot fish sets up a point-of-sale system for a local restaurant. "I got the network configured and all the stations communicating, then left," says fish. "Two days later, one of the owners called and said the system was not working. They were getting a message on one of the stations that it couldn't connect to the server. I asked her a few preliminary questions to make sure the network was working, and then asked if there were any problems with the server. The co-owner said, 'I don't think so, but it's turned off right now.' I responded, 'I have a suggestion. . . .' "

■ *Sharky's suggestion: Send me your true tale of IT life at sharky@computerworld.com. You'll snag a snazzy Shark shirt if I use it.*

COMPUTERWORLD.COM

TIRED OF BUNGLING BOSSES and clueless co-workers? Swim on over to Shark Bait and share your tales of woe. **sharkbait.computerworld.com**

CHECK OUT Sharky's blog, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky.**

■ COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at computerworld.com

ABI Research 19
Access Data Corp. 31
Acer Inc. 29
Adobe Systems Inc. 16, 25
Advanced Micro Devices Inc. 29
Apple Inc. 14
CareGroup Healthcare System 34
Cisco Systems Inc. 10
comScore Inc. 40
Dell Inc. 12, 16
Digg Inc. 40
eHarmony.com Inc. 11
Enderle Group 28
Everest Group 12
Facebook 16, 40
Forrester Research Inc. 13, 19
FTI Consulting Inc. 31
Gartner Inc. 12, 23
Google Inc. 13, 16
Guidance Software Inc. 31
Harvard Medical School 34
Healthcare Information Technology Standards Committee 34
Healthcare Information Technology Standards Panel 34
Hewlett-Packard Co. 12, 16
IBM 10, 12, 14
In-Stat 11, 28
Intel Corp. 29
J.Gold Associates LLC 8
Janco Associates Inc. 36
KPMG LLP 32
LinkedIn Corp. 40
Microsoft Corp. 13, 14, 25, 31
MIT 28
Netezza Corp. 11
New England Health Electronic Data Interchange Network 34
NextWindow Ltd. 14
Oracle Corp. 11
Perot Systems Corp. 12
Publisher's Clearing House Online Network 19
SAP AG 10
Scottrade Inc. 22
Slashdot 40
Sun Microsystems Inc. 13
Twitter Inc. 40
U.S. Environmental Protection Agency 10
U.S. Securities and Exchange Commission 32
Wells Fargo & Co. 8
Western Corporate Federal Credit Union 22

1&1 Internet 15
1and1.com
Citrix 6-7
Citrix.com/SimplicitylsPower
Citrix 23
goloassist.com/computer
CIO Executive Council Pathways 26-27
cio.com/otw
dtSearch 37
dtsearch.com
IBM IT Campaign C2-1
ibm.com/flexible
IBM Mid-Market* 20-21
ibm.com/engines/data2
Microsoft 9
itseverybodysbusiness.com/virtual
NetApp 3
netapp.com/ard
Qwest C3
qwest.com/business
SAS C4
sas.com/cameis
SNW Best Practices in Storage 35
snwusa.com
Sprint 5
sprint.com/convergence

* Regional Select

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement PM40063731. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published twice monthly by Computerworld Inc., 492 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171. Copyright 2009 by Computerworld Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Ray Trynovich, Computerworld Reprints, c/o The YGS Group, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (800) 290-5460, Ext. 148. Fax: (717) 399-8900. Web site: www.reprintbuyer.com. E-mail: computerworld@theygsgroup.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy; Annual subscription rates: – $129; Canada – $129; Central & So. America – $250; Europe – $295; all other countries – $295. Subscriptions call toll-free (888) 559-7327. **POSTMASTER:** Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, Ill. 60065-3500.

BPA WORLDWIDE | ABM

OPINION

Scot Finnie

The Business Sense of Twitter

MANY IT shops consider employee use of social media a nuisance or time waster. And though LinkedIn and Facebook offer a measure of business value, it's not difficult to understand why.

Twitter might look like just another social media tool, but in truth, it's utterly different, with strong potential for business ROI. (See "Cashing In on Tweets," Sept. 21.)

Technically, it offers little more than Facebook's status message, but the advantage comes not from the tool itself but from the community of people using it and the way they do so. Here's why Twitter is a much better social medium for IT professionals and other businesspeople:

1. It's got a real business use. More than any other social media site, Twitter is used by a great number of businesspeople, who are tweeting about professional topics. According to a comScore study, people aged 45 to 54 are 36% more likely than people in any other age group to use Twitter. You may be surprised to learn how many of your colleagues are tweeting — and not just to report what they had for lunch. Meaningful discourse occurs on Twitter most every hour of every day.

2. It's OK to follow people you don't know. It's not cool on Facebook or LinkedIn to friend people you don't know at all. But Twitter is about information, and "following" people you don't know — merely because of the interesting things they might say — is the rule. Unless someone has invoked Twitter's "protect my tweets" setting (and very few do), you don't need permission to follow anyone. In order to spread *your* word, you need followers on Twitter. But you can still gain significant benefit along the way by listening.

3. Twitter delivers news, unique perspectives and stellar information. This is the key benefit, and it doesn't get talked about as much as it should. Like Digg and Slashdot, Twitter has a large content-recommendation culture. The tool is designed to do that with a built-in URL shortener. And with Twitter, the best content bubbles to the top. People tweet or retweet (forward someone else's tweet) only the most interesting things. Spend a couple of hours following smart people on Twitter, and you'll likely learn things you might not learn any other way. That makes it an excellent environment for following trends, gathering information, gauging buzz and researching topics of interest. You can also interact with people and pose questions to get discussions started.

■ Meaningful discourse occurs on Twitter most every hour of every day.

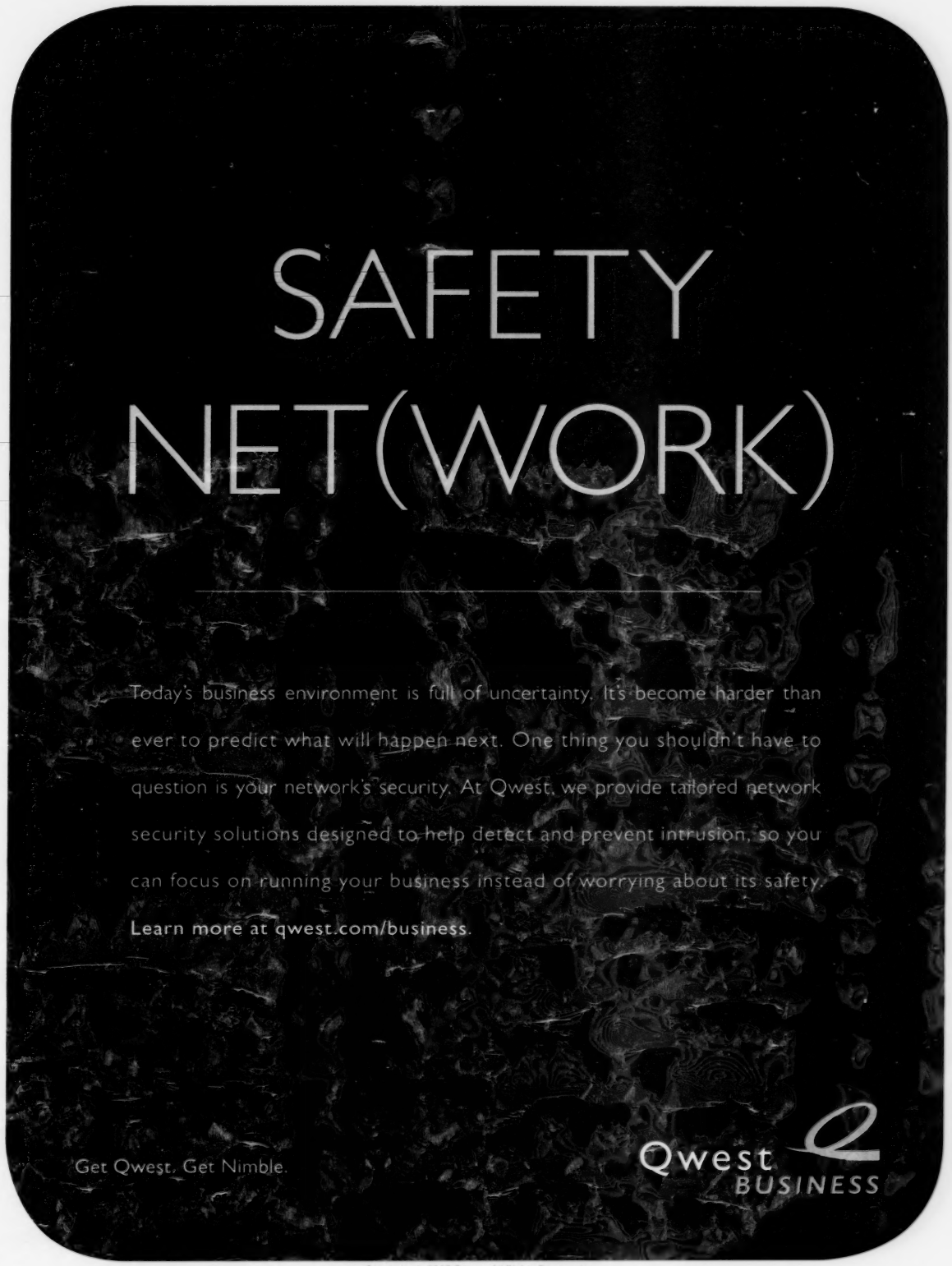
4. You can mark your company or personal brand. Twitter can be used for many business or professional goals: building your personal or company brand, enhancing your business relationships, interacting with customers, doing market research or selling. Once you build up a large enough following, Twitter becomes a microblog. It's a powerful one-to-many tool that reaches a very influential, engaged audience.

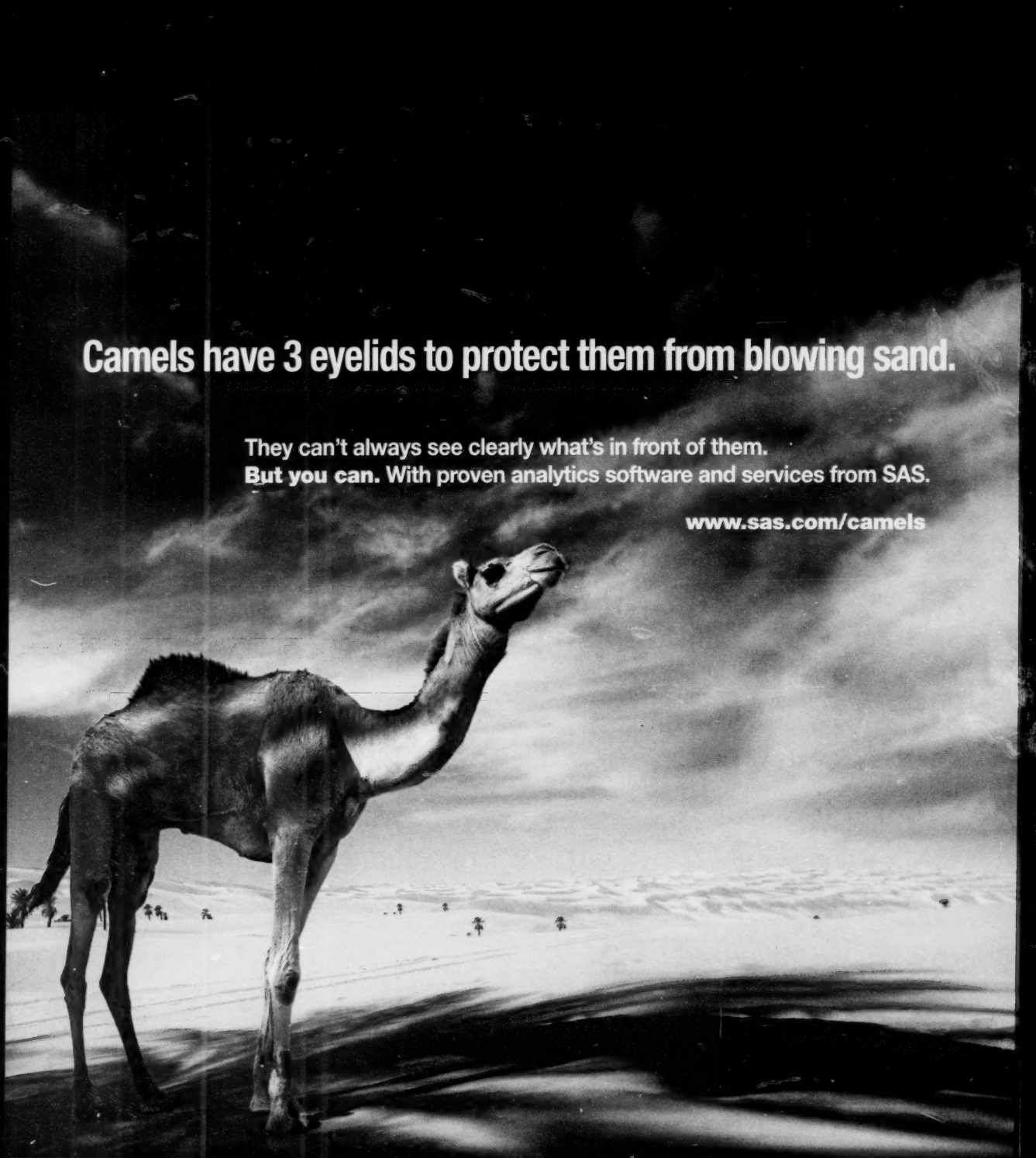
5. There are no cliques or hurt feelings. You fully control the stream of tweets you see. Don't like someone's bald self-promotion? It's easy to "unfollow" someone, and it doesn't send them a message such as "Scot Finnie stopped following you and therefore clearly doesn't like you anymore."

A couple of tips for smart tweeting: Follow only people you're genuinely interested in. Following everyone may help you get followers, but it defeats half of the benefit of Twitter: reading the thoughts of the most insightful people.

With a tool like TweetDeck, you can create multiple groups consisting of the tweets of people who are generally focused on a specific topic. You can also follow hash tags — or Twitter searches — to see tweets on specific topics. I used Twitter for over a year before I tried TweetDeck. Once I did, the value of Twitter increased markedly for me right away. There are many other Twitter tools. To learn more, see "8 Free Twitter Clients for Better Tweeting" on *Computerworld.com*. ■

Scot Finnie *is Computerworld's editor in chief. You can catch him online at twitter.com/sfinnie, or contact him at SFinnie@computerworld.com.*


SAFETY
NET(WORK)
Today's business environment is full of uncertainty. It's become harder than ever to predict what will happen next. One thing you shouldn't have to question is your network's security. At Qwest, we provide tailored network security solutions designed to help detect and prevent intrusion, so you can focus on running your business instead of worrying about its safety.
Learn more at qwest.com/business.
Get Qwest. Get Nimble.
Qwest
BUSINESS
Copyright © 2009 Qwest. All Rights Reserved.


Camels have 3 eyelids to protect them from blowing sand.
They can't always see clearly what's in front of them.
But you can. With proven analytics software and services from SAS.
www.sas.com/camels

SAS SOFTWARE HELPS COMPANIES ACROSS EVERY INDUSTRY DISCOVER INNOVATIVE WAYS TO INCREASE PROFITS, MANAGE RISK AND OPTIMIZE PERFORMANCE.

SAS® Analytics

Visit www.sas.com/camels for ***Competing on Analytics series summary***

- Large-scale forecasting
- Data and text mining
- Model management and deployment
- Data visualization
- Optimization
- Quality improvement
- Statistical analysis

sas | THE POWER TO KNOW.

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration. Other brand and product names are trademarks of their respective companies. © 2008 SAS Institute Inc. All rights reserved. 511830US.1008